

A HARPER INTERNATIONAL STUDENT



REPRINT

822
~~822~~

822



CHILD DEVELOPMENT AND PERSONALITY



22





CHILD DEVELOPMENT AND PERSONALITY



Paul Henry Mussen

John Janeway Conger

Jerome Kagan



A HARPER INTERNATIONAL STUDENT REPRINT
jointly published by
HARPER & ROW, New York, Evanston & London
and JOHN WEATHERHILL, INC., Tokyo

612.65

MUS

LIBRARY

Date

93.99

Acce. No.

9863

This Harper International Student Reprint is an unabridged, photo-offset reproduction of the American edition. It is for sale in Europe by HARPER & ROW, PUBLISHERS, LTD., 35 Great Russell Street, London W. C. 1, England; in Japan by JOHN WEATHERHILL, INC., 50 Ryudo-cho, Azabu, Minato-ku, Tokyo; and in other designated countries by HARPER & ROW, PUBLISHERS, INC., 49 East 33rd Street, New York 16, New York. / Copyright © 1956 by Harper & Row, Publishers, Inc. Copyright © 1963 by Paul H. Mussen, John J. Conger, and Jerome Kagan. / All rights reserved; no part of this book may be used or reproduced in any manner whatsoever without written permission except in the case of brief quotations embodied in critical articles and reviews. For information write Harper & Row, New York, at the address given above. / Library of Congress catalog card number 63-7294. / Printed in Japan. / First printing, September, 1963. / Second printing, February 1964.

Frontispiece by W. Eugene Smith

CONTENTS

<i>Preface to the First Edition</i>	xi
<i>Preface to the Second Edition</i>	xiii

1 INTRODUCTION 1

The Practical Importance of Child Psychology The Purpose of this Book Plan of the Book Prescientific Child Psychology The Nature of Science Steps in Scientific Investigation Child Psychology and the Scientific Process Two Approaches to Research on Development

PART I

THE PRENATAL PERIOD

2 GENETIC FACTORS IN DEVELOPMENT 29

Beginnings of Life Hereditary Transmission The Nature-Nurture Controversy Putting Genetic Determinants in Perspective Results of Human Genetic Research

3 PRENATAL DEVELOPMENT 57

How Conception Occurs The Earliest Period of Embryonic Development The Period of the Embryo The Period of the Fetus Prenatal Environmental Influences The Birth Process and Its Consequences

PART II

THE FIRST TWO YEARS

4 BIOLOGICAL CHANGES IN THE FIRST YEAR 87

Congenital Differences Among Neonates Body Growth Basic Needs Sensory Development Response Capabilities Motor Development in the First Year Mental Development in the First Year Emotional Development

5 LEARNING 127

Types of Needs and Motives Learned Needs as the Basis for Other

Learned Needs Heredity and Learned Motivation Environmental Influences on Learned Motivation

6 SOCIAL LEARNING IN THE FIRST YEAR 153

The Needs of the Infant Learning About the Reward Value of the Mother Consequences of Inadequate Care and Institutionalization The Feeding Situation Methods of Handling Infant Feeding Introduction of Case Histories

7 DEVELOPMENT IN THE SECOND YEAR 183

General Physical Development Motor Development Language and Intellectual Development Socialization and Toilet Training Exploratory Behavior and the Learning of Autonomy Maternal Behavior—Affection and the Giving of Autonomy The Motives and Sources of Anxiety and the Two-Year-Old

PART III

THE PRESCHOOL YEARS

8 THE PRESCHOOL YEARS: MOTOR AND INTELLECTUAL DEVELOPMENT 233

Physical Growth Psychomotor Development Intellectual Development

9 THE PRESCHOOL YEARS: PERSONALITY DEVELOPMENT 261

I. Social Learning

Sex-Typing How Does an Identification Develop? Moral Standards Goal-Related Behaviors in the Preschool Child

10 THE PRESCHOOL YEARS: PERSONALITY DEVELOPMENT 303

II. Reactions to Conflict and Anxiety and Interactions with Peers

Defenses of Preschool Children Frustration and Behavior Relationships with Peers Nursery School and Social Behavior Psychotherapy

PART IV

MIDDLE CHILDHOOD

11 DEVELOPMENT DURING THE MIDDLE-CHILDHOOD YEARS 357

I. Expansion of Social Environment

Physical Growth Factors During Middle Childhood Sex Role Iden-

tification in Relation to Personality Development Relations with Peers Factors Affecting Peer Acceptance and Status Socialization Functions of the Peer Group Influence of the Family in Middle Childhood Sources of Anxiety and Conflict in Middle Childhood

12 DEVELOPMENT DURING THE MIDDLE-CHILDHOOD YEARS 426

II. Adjustment to School and Intellectual Development

Characteristics and Demands of the School Environment Socio-economic Status and School Achievement Physical Development in Relation to School Achievement The Measurement of Intelligence Intellectual Performance in Relation to Personality and Parental Practices General Intellectual Processes in the Child Variations in School Experience

PART V

ADOLESCENCE

13 ADOLESCENCE 505

Physical Changes in Adolescence Relation Between Physical Development and Personality Intellectual Growth at Adolescence

14 PSYCHOLOGY OF THE ADOLESCENT 531

I. Sex, Independence, and Vocational Choice

Sexual Behavior in the Adolescent Parental Attitudes Toward Sexuality Cultural Differences in Sexual Attitudes and Behavior Relations with Opposite-Sex Peers Dependence and Independence Vocational Choice

15 PSYCHOLOGY OF THE ADOLESCENT 570

II. Moral Standards and Juvenile Delinquency

Morality and Values Ego Identity Stability of Adolescent Behavior Juvenile Delinquency Etiology of Delinquent Types Emotional Maturity—Epilogue

Index of Names 611

Index of Subjects 614

PREFACE TO THE FIRST EDITION

In the course of teaching classes in child psychology and personality development, the writers began to feel the need for a text which would meet several requirements. It should trace child development chronologically in order to enable the reader to gain a feeling of continuity from one stage of development to the next. The various aspects of growth—physical, intellectual, social, and emotional—should not be considered as unrelated phenomena. An attempt should be made to present a comprehensive view of the child at each stage of his growth, with the main focus being on the ways in which various factors influence the development of personality. Furthermore, the vast body of data of child development should be integrated—in so far as is possible at our present stage of knowledge—with general behavior theory. In our view, concepts derived from research on learning, from clinical psychological investigation, particularly psychoanalysis, and from sociological and cultural anthropological studies appeared most relevant for this purpose.

The present book is the result of a joint effort by the writers to achieve these objectives. It has been a thoroughly coöperative venture. The book was jointly planned and carried out. In the actual writing, chapters by one author were often extensively revised, as a result of suggestions by the other. Because of this extremely close collaboration, the order of names on the title page is purely a matter of chance.

A number of individuals have played an important role in the development of the general thinking reflected in this book. Among those who have influenced us most strongly, through their teaching or writing, are David P. Ausubel, Irvin L. Child, John Dollard, Leonard W. Doob, Glen Heathers, Neal E. Miller, Seymour B. Sarason, Robert R. Sears, and John W. M. Whiting.

The following individuals have read all or part of the manuscript, and have made many helpful suggestions: Irvin L. Child, Linda Hassel, Jerome Kagan, Marvin Kahn, Gardner and Lois B. Murphy, Harry Mus- sen, Robert Rainey, Philburn and Mildred Ratoosh, Alvin Scodel, and

Judith Worrell. Our greatest single debt of gratitude is to Irvin L. Child of Yale University for his unflagging interest in our efforts and his extensive criticisms of the entire manuscript.

In addition, we are grateful for the stimulation received from students on whom earlier versions of the manuscript were inflicted. Our research assistants, Donald Payne, Joseph Rychlak, and Ted Nelson, have been particularly helpful.

For aid in typing the manuscript or in preparation of tables and illustrations we are indebted to: Jessie Greensley, Mabel Oakley, Roberta Kuhn, Mildred Waddell, Virginia Brevort, Marcille Goss, Katharine J. Conger, Raymond S. Patterson, Henry L. Janeway, and Glen Mills.

For their constant encouragement and support throughout this venture, we wish to thank Herbert S. Gaskill, Gardner Murphy, John Benjamin, Julian Rotter, Robert Stubblefield, and our more than tolerant wives, Ethel Mussen and Trista Conger.

P. H. M.
J. J. C.

Denver, Colorado
January, 1956

PREFACE TO THE SECOND EDITION

The six years since the appearance of the first edition of this book have been exciting ones for child psychology. Systematic research has increased the probably validity of many statements that were largely speculative only five years ago. Other statements must now be revised or deleted in the face of new evidence. Furthermore, several previously neglected problem areas in human development have been subjected to the scrutiny of more empirical research, and some important topics, which had been minimally discussed because of insufficient information, can now be elaborated. Among these topics are constitutional differences among neonates, perceptual and cognitive development, the relation between personality and intellectual development, and the relation between physical changes and psychological conflicts during the adolescent period.

A major innovation in this second edition is the extensive use of longitudinal case material from the files of the Fels Research Institute. The development of two boys will be described in detail in order to give concrete illustrations of some of the processes emphasized in the book. It is hoped that this *in vivo* documentation will give the student a richer and more tangible appreciation of the complexity of human development.

The theoretical orientation remains the same. The authors still believe that contemporary learning theory offers the best method for the analysis of behavior. It will be noted, however, that the learning theory concept of reinforcement has been liberalized in order to account most parsimoniously for certain recent research findings on direct brain stimulation and on the consequences of sensory deprivation.

Psychoanalytic theory continues to offer valuable clues as to the major intrapsychic states that should be attended to in a description of human development. Although the principles of learning help explain the child's adoption of his parents' behaviors and attitudes, psychoanalytic theory suggests relevant motives and rewards that lead to the acquisition and maintenance of this behavior. Finally, the notion of "critical periods" in development, which was introduced in the first edition, is given much

greater emphasis, especially in discussions of infancy and the preschool years.

This revision of the original text was the primary responsibility of Jerome Kagan. Bärbel Inhelder read the section on mental development and offered valuable comments. Similarly, Stanley Garn's suggestions for the sections on physical growth were most helpful.

Eleanor Maccoby made extensive criticisms of the entire manuscript, and we appreciate her interest in our efforts and her many valuable suggestions.

We are particularly grateful to Leah Johnson who typed draft after draft of the revised manuscript with devotion to the task that went far beyond the normal call of duty.

We wish to thank Lester W. Sontag for his encouragement and support throughout this endeavor and his granting of permission to use case material from the Fels Institute's files.

P. H. M.

J. J. C.

J. K.

1

INTRODUCTION

The working definition of child psychology is undergoing a gradual renovation. Historically, this area of investigation was differentiated from other fields of psychology principally because of its emphasis on a specific subject, the child; there was relatively little concern with particular processes which were related to broader aspects of human functioning. The subject matter of child psychology has often been limited to a collection of statements describing the chronological development of a variety of behaviors during the childhood years. Early child psychology texts tended to present detailed descriptions of the acquisition of motor and language responses, but seldom attempted to relate these to a more general theory of human behavior.

This book presents a more contemporary view of child psychology. It deals primarily with what appear to be important processes in human behavior that have their roots in the early years. The child is studied, not only because he is a child, but also because much of his early development affects later functioning and because many theoretical issues in psychology demand an understanding of the first decade of the individual's life.

Modern developmental psychology has much in common with other areas of psychology. It is concerned with the accurate description, explanation, and prediction of behavior. Basic general principles pertaining to learning, perception, motivation, and interpersonal relations are as applicable to developmental psychology as they are to other branches of the science. In fact, many aspects of children's behavior remain incomprehensible without an understanding of these generalizations.

For this reason, child psychology draws heavily upon the knowledge and resources of the entire realm of psychology, but it also makes many contributions to the total discipline of which it is a part. Many of the principles of psychology have been derived largely from laboratory experimentation with animals or with human beings in highly artificial, contrived situations. Consequently, it is often difficult to determine their

value as general explanations of behavior. If, however, these principles can be shown to apply to children's behavior, their usefulness is substantially increased. Thus, the area of child psychology provides a proving ground for determining the generality of psychological principles.

THE PRACTICAL IMPORTANCE OF CHILD PSYCHOLOGY

In addition to its theoretical importance, there are three substantial practical reasons for studying child psychology.

Understanding Individual Children

The first is to make the individual child's behavior more comprehensible and meaningful. Through systematic investigation of psychological development and social adjustment, research workers learn what is "average" for children of a given age. This knowledge may be used in evaluating individual children. Are they progressing as they should be? Are they average, below average, or superior in some respects? Does this particular youngster learn to walk before, after, or at the same time as the average child learns to walk? Does he understand as many words as the average child his age? Can he answer as many and as difficult intelligence test items? Is his emotional control as well developed as other children's? Does he participate in social activities which are typical of children his own age or of younger or older children? Having standards or norms of development to which children may be compared is often very helpful in diagnosing problems of physical or psychological development.

Child psychology includes the study of the child's heredity, physical constitution (biological, chemical, and physiological processes within his body), and environmental forces to which he is exposed. All these, working together, affect his physical and intellectual growth, psychological health, and social adjustment. Understanding these factors and their interrelationships may aid in the solution of the kinds of behavior problems which bring children to the attention of juvenile courts, social welfare agencies, psychologists, and psychiatrists.

For example, a child 8 months old may be brought to a well-baby clinic or to a doctor's office because his parents do not feel that he is progressing as rapidly as other children. They report that he seems generally unresponsive, uninterested in people or in the environment. Developmental scales may demonstrate that, according to the norms or standards of performance for his age group, he is retarded in motor and

sensory development. Although it is almost impossible to make an accurate diagnosis of intellectual status in a child this young, these findings suggest, very tentatively, the possibility of mental deficiency.

If, in addition to his retardation in sensory and motor development, the child is very small for his age, a thorough medical checkup may be advised. This examination may reveal that the child is suffering from a thyroid deficiency. Previous research has shown that in a special kind of mental defect known as *cretinism*, there is an intimate connection between iodine deficiency in thyroid secretion and intellectual and physical retardation. Treatment by the administration of thyroid is, in many cases, highly effective in stimulating both physical growth and psychological development, particularly if the condition is detected early.

In this case, comparison of this child's ability with norms of motor and sensory development made it clear that the child was retarded in those areas. Facts derived from previous research showing the relationships among psychological retardation, physical size, and thyroid deficiency were useful in prescribing therapy. In short, the norms served as a basis for suggesting a diagnosis and knowledge of the interactions among these factors was valuable in suggesting a method of treatment.

Another illustration of the practical utility of the data of child psychology may be drawn from the field of juvenile delinquency. A 10-year-old middle-class boy of normal intelligence has been stealing bicycles from other children in his neighborhood and is therefore brought to a juvenile court. His delinquency may be considered evidence of personality disturbance. Research in this field has shown that delinquent behavior often has its roots in the child's deep feelings of rejection and insecurity in his home. Knowing the results of such scientific investigations, the court psychologist has some notion of how to proceed with the case. He will be alert to possible feelings of rejection in this boy; if he finds them, he can then look for their sources and work toward alleviating them.

In this connection, techniques of psychological treatment (psychotherapy) may be used with the delinquent child. The aim of such treatment is to allow the child to express his feelings freely and to learn to understand the factors involved in his socially unacceptable behavior. If he can gain insight (emotional understanding) and release his emotional tensions, the child may be able to reconstruct his emotional attitudes and behavior.

The psychologist may attempt to modify the child's environment if this is possible. By working with the delinquent's family, he may be able to help reduce conflict and stress in the home. The child may perceive

the changed home situation as less rejecting, and hence there may be less motivation for him to commit delinquent acts. In this case, scientific findings about the relationship between home environment and personality problems could be applied in attempting to modify the child's behavior and to make it more socially acceptable.

Understanding Adult Behavior

Studying the psychology of childhood provides us with a background for a more thorough understanding of adult behavior. Clinical data from case histories of criminals and patients at psychiatric clinics reveal that personal and social maladjustments among adults almost always have their beginnings in early life experiences. It was Sigmund Freud, the father of psychoanalysis, who called attention most forcefully to the importance of childhood events. Through his penetrating analyses of the patients with whom he worked, he made abundantly clear the truth of the poet's statement, "the child is father to the man."

Generally speaking, the origins of adult unhappiness and feelings of inadequacy must be sought in the individual's childhood. Therefore, in order to understand the adult's psychological problems with any degree of sophistication, we must learn about his early developmental history.

It is not only abnormal behavior that has its origins in childhood, however, for many of the normal adult's important personality characteristics and behavior patterns are traceable to factors in his earlier life. A man may be shy and withdrawn or friendly and outgoing; generous or stingy; independent in his actions or dependent on others; lazy or ambitious; tense or relaxed; passive or aggressive. All these characteristics are the outcomes of his entire unique history of personality development, but particularly of the intimate experiences of his childhood. Similarly, the broad lifetime goals and overall philosophy of the individual—his choice of vocation and the satisfactions he will seek from it, the kind of person he will want to marry, and his expectations with regard to his children—become fully understandable only in the light of his entire developmental history.

Understanding Social Problems

Still another major reason for much of the current interest in child psychology is the increasing evidence that many crucial social problems are closely related to individual personality structure and its determinants. Thus, it has been shown that conflict between groups is often a reflection of the personal tensions of the members of these groups. It

has also become apparent that vital social attitudes—such as attitudes toward other nations and toward minority groups, toward democracy and fascism—and political activity or disinterest are directly connected with personality development and structure. For example, research has revealed that while children's and adults' antiminority group feelings are undoubtedly learned from others, they have their roots in, and derive some of their strength from, early resentments and hostilities toward parents. Investigations of this sort provide impressive evidence of the pervasive and enduring effects of childhood influences.

THE PURPOSE OF THIS BOOK

Stated most generally, we propose to trace the process of development of the total, integrated personality of the child. More specifically, we shall attempt to bring together the pertinent data relating to such challenging questions as: Why and how does the child become the kind of individual he is? What are the innate, constitutional, and environmental sources of his habits, feelings, emotions, intellectual skills, and attitudes? How are certain aspects of his personality acquired? What are the origins of neuroses and maladjustments in children? It has already been hinted—and will become increasingly obvious—that many factors, operating in complicated ways and in varied combinations, are involved in the answers to any of these questions.

Personality development may be viewed as a continuous, highly complex process, involving the interaction of a biological organism with its physical, psychological, and social environment. No two individuals will ever develop identical personalities, since no two people ever encounter quite the same patterns of developmental influences. For one thing, except in the case of identical twins, no two people have identical hereditary endowments. Furthermore, as development proceeds, differences between people become magnified as a consequence of individual variations in maturational factors and in prenatal and postnatal experiences.

Because of the highly complex nature of the developmental process, physical, emotional, intellectual, and social components of development are not separate and independent. They are functionally related to one another. Thus, emotional factors may affect aspects of physical health, while emotional maladjustment may influence intellectual performance. Our emphasis throughout this book will be on relationships of this sort.

In order to provide background for understanding the interrelationships, it will often be necessary to isolate one or another aspect of per-

sonality and discuss it separately. When this occurs, the reader should keep in mind that this abstraction is made for convenience of exposition only. The developing personality is a vast, unified network of interrelated segments, and, fundamentally, the parts cannot be separated from one another. However, just as one of the organ systems of the body can be made to stand out from the rest of the animal's anatomy by the use of special dyes in a fluoroscopic examination, one aspect of personality may be highlighted by focusing attention on it. In each of these cases the basic unity of the entire structure—the biological organism in one case and personality in the other—cannot be overlooked, even though a part of it can be isolated temporarily for more thorough examination.

Consideration of separate aspects of development may also have utilitarian value. Thus, as we have seen, studies of single segments of growth and development, such as motor ability, yield background information and provide standards which may be useful in assessing a child's developmental status. But an evaluation of one segment of development cannot be meaningful unless other aspects of growth and environmental factors are considered simultaneously.

For example, in a particular case, retarded physical development itself may not be a crucial determinant of the child's psychological adjustment. However, parental attitudes toward the child may be influenced by his physical size. Whether they realize it or not, adults may treat him as a younger or inferior child because he is smaller than most children his age. The child's attitude toward himself will be derived largely from the attitudes of others toward him, and he may begin to have feelings of inferiority and inadequacy. This, in turn, will affect his general social and emotional adjustment. Thus it is often true that the influence of a single factor in the child's development, such as physical status, can be understood fully only in the light of the total context of forces impinging upon him.

PLAN OF THE BOOK

The general plan of this book is to follow personality development chronologically. Development is a continuous process, starting with conception. The chapters of the book center attention on various periods of the child's life in chronological order. However, this arbitrary division has been made only for purposes of exposition. In the actual process of development, one period follows the next in unbroken order.

Within this chronological framework, we shall make use of what has

become known as a "critical periods" approach to development. This point of view maintains that certain events assume more crucial significance at certain specific periods in the individual's life than they do at other times. Interference with, or disruption of, a growth process during a critical time period will have greater consequences for future development than similar interference at some other point in time. For example, withdrawal of a particular chemical from the nutritional environment of the fetal rat during the first week of prenatal development usually results in the death of the unborn animal. Withdrawal of the same chemical two weeks later has very little effect on the animal's development (11).

Psychologically, the period between 3 and 7 weeks of age is a critical one for the social development of puppies (16). Isolation of a puppy during this time leads to the growth of fear and timidity in response to both dogs and people, while isolation at another time is of less significance. Thus, the development of a positive social orientation to humans and other animals may depend on what happens in the critical period between 3 and 7 weeks. As we shall see later, there is good reason to believe that the first two years of life are critical in the child's development of positive attitudes toward the social environment.

To summarize, we shall emphasize the importance of certain events during specific age periods because these events appear to play a major role in the child's subsequent behavior. Feeding experiences during the first year; socialization training during the second and third years; school entrance and contacts with peers in the fifth year are some examples of these critical events that occur at specified periods in the child's development.

Throughout the book, each aspect of personality development will be analyzed in terms of antecedent experiences, consequent characteristics, behavior and events, and the life period in which it occurs. That is, the child's behavior, interests, attitudes, and feelings will be discussed from the points of view of: (1) factors in the child's background (biological, psychological, or social) leading up to and influencing the development of these characteristics, and (2) the importance of these characteristics for the child's future development. In short, we must look backward in our efforts to understand the many factors (antecedents) which underlie the child's present behavior. Conversely, a forward look is necessary to see how his present characteristics and behavior may influence his personality later on (consequents).

Only part of the data required to understand the infinitely complicated

process of personality development comes from psychology itself. For this reason, modern child psychology draws from many disciplines. Some knowledge of genetics is required to understand how heredity operates. Medical science, particularly the specialized field of pediatrics, has contributed considerable data on differences in biological structure and functioning and their consequents. Psychiatry has yielded a vast body of facts and theories about the relationship of childhood events to subsequent maladjustment. Anthropological and sociological research have provided extremely valuable information on the influences of membership in particular ethnic groups, social classes, castes, or minority groups within or outside American culture. A thorough science of personality development requires contributions from all these fields. In our opinion, comprehensive understanding can emerge only from the integration of many kinds of data.

We must acknowledge that child psychology is still a young science. Although facts and theories in the field are accumulating at a rapid rate, there are still tremendous areas about which we know practically nothing. A multidisciplinary approach, making use of the best each discipline has to offer, seems to be the best route to scientific maturity and progress.

PRESCIENTIFIC CHILD PSYCHOLOGY

Philosophical Writings

Although scientific child psychology is a relatively recent development, writers in all periods of history have been interested in children's behavior. Plato recognized the importance of early childhood training in the determination of the individual's later vocational aptitudes and adjustments. In his *Republic*, he discussed inherent differences among individuals and recommended that steps be taken to discover each child's outstanding aptitudes so that specific education and training along the lines of his particular talents might begin early.

Late in the seventeenth century, the English philosopher, John Locke, published his essay, *Some Thoughts Concerning Education*. He maintained that infants have minds which are blank tablets (*tabulae rasae*) at birth and that they are therefore receptive to all kinds of learning. The object of all education, according to Locke, is self-discipline, self-control, and the "power of denying ourselves the satisfaction of our own desires, where reason does not authorize them" (8). He felt that the best way to achieve these goals was to begin instructing children in self-denial "from their very cradles." The teaching techniques advocated by Locke resemble quite closely the methods of what we now call "formal education."

Jean Jacques Rousseau, a French philosopher, writing in the latter half of the eighteenth century, believed that the child is born with an innate moral sense. In *Emile* (15) he spoke of the child as a "noble savage" with intuitive knowledge of what is right and wrong. Restrictions imposed on the child by adult society thwart him and force him to become less virtuous. For the general improvement of the individual and society, Rousseau advocated a back-to-nature movement which would eliminate social conventions and encourage the unrestrained expression of original, inherently noble impulses.

There is, of course, no scientific evidence to substantiate Rousseau's assumption that children are inherently "good" or "noble." Nevertheless, his views have been tremendously influential in education, especially in the establishment of "progressive" schools which stress spontaneity and freedom of expression. Parenthetically, it is interesting to note that Rousseau considered the experiences of the first few years of life the most influential ones in the individual's development, thus anticipating much modern psychological thinking.

Plato, Locke, and Rousseau were only three of the many philosophers who were implicitly or explicitly interested in children and their development. Their writings often reflected penetrating, but untested, philosophical analyses. In contrast to the methods of contemporary psychology, these philosophers' theories and ideas were not checked by systematic or careful observations. Nevertheless, their speculations have been stimulating, and their writings have had profound influences upon psychological and educational theory, practice, and research.

Baby Biographies

Beginning late in the eighteenth century, a few curious and courageous individuals attempted to learn about children by the novel procedure of actual observation. In 1774, a Swiss named Pestalozzi published notes based on the careful observation of the development of his 3½-year-old son (12). Thirteen years later, Tiedemann published a book (17) tracing the sensory, motor, language, and intellectual growth of a single infant during the first two and a half years of life.

In the nineteenth century, a series of "baby biographies" began to appear. Typically these were accounts of the development of the author's own child, niece, or nephew. Among the writers of such biographies were ✓ Charles Darwin, the famous biologist, (*A Biographical Sketch of an Infant*, 1877) (4) and Bronson Alcott, the father of Louisa May Alcott, the author of *Little Women*, who entitled his biography *Observations of the Vital Phenomena of My Second Child* (1).

Biographies of this sort do not provide good scientific data for several reasons. Often the observations were unsystematic, and made at irregular intervals. Moreover, the observers were usually proud parents, uncles, or aunts, and were probably biased and selective in their perceptions; that is, they saw primarily the positive, praiseworthy aspects of early development, and neglected other negative factors. Finally, since each account is based on only one case, it is almost impossible to make generalizations from any of them.

Nevertheless, like the earlier philosophical works, these biographies were valuable, for they contained some information, and many hypotheses about the nature of development. In fact, the conclusions drawn from the baby biographies were not nearly so important as their influence in delineating major problems of child psychology and exciting widespread interest in the scientific study of children.

Beginnings of Modern Child Psychology

Toward the end of the nineteenth century, systematic study of larger groups of children began. A pioneer in such study in the United States was G. Stanley Hall, president of Clark University, who was interested in investigating "the contents of children's minds" (7). For this purpose, he devised a new research technique, the questionnaire, consisting of a series of questions designed to obtain information about children's and adolescents' behavior, attitudes, and interests. Hall collected written responses to questionnaires from both children and parents.

In a sense, Hall's work, which continued into the twentieth century, marks the beginning of systematic child study in the United States. By modern standards, his work would not be considered controlled or highly objective. The problems with which he was concerned have been investigated with much greater scientific sophistication in recent years. Nevertheless, he did employ large numbers of subjects in an effort to obtain representative data, and he attempted to determine the relationships among personality characteristics, adjustment problems, and background experiences. For these reasons, Hall's approach to child psychology certainly represented a distinct advance methodologically over the philosophical and biographical approaches discussed above.

THE NATURE OF SCIENCE

Throughout this book, emphasis will be placed on the most important empirical findings and basic principles which have been derived from

scientifically conducted studies in child psychology and personality development. But before we begin to discuss the actual content of the field, it is important to consider briefly the nature of science and scientific investigation. Our aim is to clarify the major differences between scientific child psychology, with which we are concerned in this book, and nonscientific child psychology, exemplified by the earlier works of the philosophers and baby-biographers.

If asked, "What is science?" and "How does the scientist work?" most people would immediately think of the dramatic achievements of physical and biological scientists working in laboratories and applying their findings to practical problems. The most publicized products of scientific endeavor are more and better mechanical devices, improved industrial and agricultural techniques, and more effective methods of preventing and curing disease. In the minds of the few, we may be living in the "age of anxiety," but to most it is the "atomic era" or the "space age." The power of physical science is now virtually unquestioned. The image of the scientist as a long-haired, absent-minded, and usually impractical laboratory doodler, has been replaced by that of the powerful and dynamic rocket expert or atomic scientist, self-assuredly working in the midst of a welter of flashing lights and high-voltage sounds.

However, the characteristics that distinguish scientific from nonscientific endeavors have little to do with the size, complexity, or expense of the equipment that is used. Further, the use of a laboratory is necessary only in certain aspects of scientific work. Archaeology and astronomy, which have accumulated important scientific principles, involve little laboratory experimentation. Let us, therefore, lay aside our stereotyped conception of the scientist as a white-coated man in a laboratory or a theoretical physicist at a blackboard and ask the basic question, "What is science about?"

Science is not defined in terms of specific, concrete techniques, equipment, or content. It is, rather, a way of doing things, a way of looking at nature which involves certain principles and procedures. All scientists, regardless of their special area of interest, adhere to these. There are some basic principles of a scientific approach to nature:

1. Scientific statements must be communicable. The language and measurement techniques used by the scientist must involve words and symbols that other scientists understand. This requirement insures that other investigators in a field have a clear picture of what was observed and can repeat the observations. Thus, the statement, "I saw that Johnny was *upset* this morning," is not the best type of scientific statement be-

cause it is ambiguous. There is likely to be disagreement about what the word *upset* means. The statement, "Johnny cried for five minutes and showed many uncontrolled arm and leg movements," comes closer to being scientifically acceptable because it is more precise and more objective. The early baby biographies contained many statements that did not communicate accurately what was being observed.

2. Objective measurement. The scientist's observations must be as free as possible from subjective bias, and in his evaluation of these observations he must use units of measurement that can be applied by others. Therefore, instruments potentially provide the most desirable methods of recording natural phenomena. Further, the degree to which the observations can be translated into numbers (quantified) is often a good index of the maturity of a science.

3. Theory. Science is characterized by the construction of hypotheses, theories, or best guesses about the determinants of the phenomena under study. Science is concerned both with collecting facts and ordering them according to a set of principles (or a theory) which allows for logical explanation of the facts and, in some cases, for prediction of subsequent events. The ability to predict future events is one of the main advantages of a theory. For example, since we have a theory (set of principles related to each other) which explains planetary motion, we can predict when the next eclipse will occur. If we had a good theory to explain why children become delinquents, we might be better able to select potential delinquents early and take preventative measures.

4. Science is open to revision. Finally, there is a common understanding among scientists that scientific statements and theories are always open to change. Thus, a theory is always viewed as the "best possible guess with our present knowledge."

... the work of science is the systematic accumulation of knowledge. Reliable empirical relationships are codified in communicable general statements which permit the deductive inference of particular events. Scientific systems are, moreover, open systems in the sense that all statements in them are subject to revision—they invite the growth of knowledge (9, 278).

The study of the behavior and development of children can be as scientific as the study of planetary motion or the metabolism of viruses. But it will not become so unless observations of children are made objectively, formulated in terms that are communicable to others, and lead to the construction of theories that will explain and predict the child's behavior.

STEPS IN SCIENTIFIC INVESTIGATION

The task of accumulating knowledge and arriving at explanations of nature involves a number of operations. D. G. Marquis has reviewed the process and concluded that: "It is possible to distinguish a sequence of six steps which can be identified in any complete research" (10, 411).

These steps can serve as a kind of idealized model or paradigm of the scientific process. They are summarized here because, taken together and in sequence, they constitute the essential pattern or working procedure which has been extremely effective in advancing physical and biological science. The plan seems equally applicable to the investigation of problems in social science and child psychology.

Step 1. Research begins with the statement of a problem (*problem formulation*). The source may be simply scientific curiosity. Often, however, it is some practical situation such as an individual health problem or a social problem. When a previously unidentified disease strikes, questions about its origin arise. If a 10-year-old child of normal intelligence cannot read, his difficulty requires further psychological investigation. When juvenile delinquency increases at an alarming rate, people begin to wonder about the underlying factors in delinquency. All these situations present pragmatic problems which must be solved in the interests of the general welfare. However, they are general problems, and more precise formulation is necessary before scientific investigation can proceed. Thus, the question, "What causes juvenile delinquency?" is a broad one and must be broken down into specific questions before it becomes capable of scientific solution. Such questions might be, "What are the personality characteristics of juvenile delinquents?" "What kinds of homes do these children come from?" "What is the influence of intelligence on a child's proneness to commit delinquent acts?"

Step 2 is "Review of knowledge—of what has been learned or said by others about the topic" (10, 412). This step involves a thorough survey of relevant earlier scientific work as well as speculative writings. It is at this stage that philosophical analyses and records such as the baby biographies mentioned earlier might be reviewed to learn something about earlier thinking and investigations of the problem. In the case of a subject like juvenile delinquency, writings, research studies, and accounts of experiences by juvenile court personnel (judges, psychiatrists, psychologists, and social workers) might give leads for attacking some of the problems formulated in Step 1.

Step 3 is called *preliminary observation*. Intensive scientific work be-

gins with this step, for observation is the fundamental operation, the *sine qua non*, of all scientific research. At this stage, the emphasis is on collection of facts and descriptions of the phenomena which may be important in the solution of the problem.

For example, if the personality structures of juvenile delinquents are to be investigated, preliminary observation might consist of informal interviews, covering a wide range of background information, with a group of delinquent children. From the data obtained, the researcher might form some tentative impressions of the specific characteristics of delinquents which are related to antisocial behavior.

From these preliminary interviews (a particular kind of observation), the most important concepts to be used in the next steps are derived. For example, there may be indications that delinquents are similar to other children in some aspects of personality, but differ in others. The concepts used in further investigations will deal with those characteristics in which delinquent children deviate from normal.

Step 4 is hypothesis or theory construction. The scientist is now ready to offer his hypothesis (best guess, tentative suggestion, or conjecture) regarding the problem stated in the first step of the scientific process. This hypothesis (or hypotheses) will be founded on previous work by others and the scientist's own preliminary observations. Generally it involves tentative explanations, stated in terms of relationships between variables, e.g., the relationship between the volume and pressure of a gas, between personality variables and delinquency, or between socioeconomic background and intelligence. When these explanations, or statements of relationship, are formulated in more comprehensive and abstract terms and bring together several hypotheses, they are called theories.

In studying the relationship between personality and juvenile delinquency, the investigator might hypothesize that the distinctive characteristics—or most important underlying factors—involved in juvenile delinquency are feelings of inadequacy and rejection. Until the hypothesis is tested, however, the scientist cannot either accept it or reject it. This means that the hypothesis must be stated in a testable form.

Step 5 consists of the testing or verification of the hypothesis (or hypotheses) formulated in Step 4. Scientific hypotheses always imply predictions. A hypothesis will be supported or refuted, depending on whether the predictions made from it are found to be true.

In our illustration, the investigator's hypothesis regarding personality factors related to juvenile delinquency may lead to the specific predic-

tion that feelings of rejection and inadequacy will be more common among delinquents than among nondelinquent children. This prediction may be tested by giving psychological tests and intensive psychiatric interviews to groups of delinquents and nondelinquents of the same age, sex, intelligence, and socioeconomic status. If analyses of the test and interview data reveal that delinquent children actually do show more feelings of rejection and inadequacy than the others, the prediction—and therefore the hypothesis—is supported and verified. If there are no differences between the two groups, the hypothesis must be rejected and a new one, taking account of these findings, must be constructed. This hypothesis, in turn, must be tested before it can be accepted. The process of building up scientific knowledge requires continuous formulation of theory, checking of theory, reformulation of theory, and rechecking. In this way, increasingly satisfactory theories—that is, theories which will account for more and more observed facts—are constructed.

Step 6 is the *application of the verified theory* or putting the tested hypothesis to work. If the predictions derived from the hypothesis prove to be correct, the scientist feels quite confident that the hypothesis is valid and that he can make practical use of it. Let us assume that there is support for the hypothesis that the delinquent's feelings of rejection and worthlessness are the most important factors underlying his antisocial behavior. This information could be used in planning the psychological treatment of individual delinquent children. Furthermore, the findings could be taken into account in organizing parent-participation programs for the reduction of juvenile delinquency.

CHILD PSYCHOLOGY AND THE SCIENTIFIC PROCESS

The steps outlined above represent an idealized program for the establishment of scientific knowledge. The whole sequence has actually been carried out most adequately in highly developed sciences such as mathematical physics. In general, the social sciences, being newer and generally dealing with more complex and involved phenomena, have not yet achieved this level of scientific sophistication. Research in these fields seldom follows the full pattern of scientific inquiry. As Marquis points out, "current social science is deficient not so much because it violates any of the steps but rather because it fails to complete the necessary sequence of steps" (10, 413).

An examination of the present status of child psychology from the point of view of this six-step procedure lends support to Marquis' state-

ment. Problems in this field have always been considered vital, and problem formulation therefore has a long history. Questions have been rephrased and brought up to date, but as we have seen, even the ancients were aware of many basic problems which still concern child psychologists. Moreover, new problems are constantly being uncovered. Since scientific progress is continuous, new problems and questions will arise as new data and theories accrue.

A vast amount of information about child psychology has been accumulated, particularly since 1900. As a result, innumerable articles, general treatises, textbooks, and handbooks have been published. Carrying out Step 2, review of knowledge, has thus become a difficult, scholarly task. Nevertheless, most investigators are conscientious in searching the literature for earlier writings pertinent to their research problems. Thorough reviews of empirical findings, as well as of theoretical and speculative contributions, reveal the methodological shortcomings of existing studies and point up aspects of problems which have previously been neglected or inadequately explored. For these reasons, recent studies do not merely repeat older ones. They avoid the errors of earlier research workers, use fresh approaches, and hence contribute new data for the solution of the problems formulated in Step 1.

A survey of the literature of child psychology reveals that the major emphasis to date has been placed on Step 3, preliminary observation. The majority of articles and books stress empirical data such as norms of physical, intellectual, emotional, and social development. Until recently, relatively few research studies were designed specifically to test or verify hypotheses.

This does not mean that Step 3 has been overemphasized. All scientific research must begin with careful observation of natural phenomena. As new problems are formulated or old ones rephrased, new preliminary observations become necessary. At present, the amount of basic data available is limited. Moreover, the validity of many conclusions is questionable, for techniques of measuring important psychological variables are often not precise enough to yield more than suggestive results.

Progress in child psychology is intimately related to progress in other branches of the field. Increased precision of methodological tools, better techniques of observation and experimentation, and optimal use of statistical techniques will lead to greater scientific sophistication in all areas of psychology, including child psychology.

Data collected in the preliminary observation stage may have immediate utility in providing norms or standards for evaluative purposes. In

addition, analyses of such data may uncover previously unsuspected relationships among variables, and thus suggest important hypotheses which can be tested later.

Theory in Child Psychology

Child psychology, and the social sciences generally, have been quite deficient in Step 4, theory construction. The value of a scientific theory may be judged on the basis of two criteria. The first is its utility in integrating and explaining different kinds of facts. Thus Einstein's theory of relativity was extremely useful in bringing together gravitational and electromagnetic phenomena, which had previously seemed unrelated.

The second criterion for evaluating a theory is its fruitfulness as a source of scientifically testable hypotheses. A good theory gives rise to many predictions which may then be tested. In brief, the best theory is the one which brings together many data and generates many verifiable hypotheses.

At present there is no single comprehensive theory encompassing the vast body of information which child psychology has accumulated. Two kinds of theory have been extremely useful, however, from the points of view both of integration of data and stimulation of research. The first of these, psychoanalytic theory, began with Freud's monumental work, and is concerned with personality development, and more particularly, with the development of emotional problems and neuroses. The concepts and hypotheses of psychoanalysis have been derived largely from clinical experience.

The psychoanalysts' therapeutic activities made them keenly aware of the tremendous impact of the child's early environment in paving the way for adult maladjustment. From their investigations of their patients' backgrounds, the analysts derived many hypotheses about the consequences of infantile and childhood experiences on later personality. The major contributions of psychoanalytic theory to child psychology have been its stimulation of hypotheses about personality development and its delineation of crucial areas in need of scientific investigation. Later on, some of the major concepts and hypotheses of psycholanalysis will be discussed more explicitly.

A second kind of theory which is extremely valuable for child psychology is known as learning or behavior theory. The most important aspects of behavior are learned: "precisely that behavior which is widely felt to characterize man as a rational being or as a member of a particular nation or social class is learned rather than innate" (5, 25).

There are many facts and theories about the nature of the learning process and the conditions under which learning occurs most effectively. As we shall see, learning begins to influence the child's development very early in life. Learning theory seems indispensable in understanding the individual's development from complete helplessness and dependence on others to maturity and independence. The basic principles of learning will be discussed in detail in Chapter 5, and we shall refer to them often throughout this book.

Psychoanalytic and learning theories are not the only ones on which we will draw throughout this book. Other theories, growing directly out of the study of child behavior and dealing with somewhat more limited aspects of behavior, have also contributed a great deal to our understanding of child psychology. For example, much of our knowledge of mental development comes from the empirical research and developmental theories of a Swiss psychologist, Jean Piaget.

Judged from the point of view of an adequate theory of development, the science of child psychology is, at the present time, immature. Although there are reasonable hypotheses about how the child develops, there is no single unifying theory that accounts for most of the important aspects of development.

In writing a text for a first course in child psychology it would be possible to focus on one theory of development and subordinate the existing facts to this theory. However, if this were done, many established facts about development would be omitted simply because they were not directly related to that particular theory. At the other extreme, it would be possible to summarize only the knowledge that has been accumulated. This approach would emphasize the facts of development but leave the student without any integrating principles or theory.

A compromise approach has been chosen for the present text. Although certain theoretical principles will be elaborated, each chapter is primarily concerned with the known facts, often including discussions of aspects of development that are not closely tied to any specific theoretical system.

Verification of Hypotheses

A number of techniques are available for verification of hypotheses, the fifth step in scientific procedure. As we noted earlier, the experimental method is only one of many methods used by scientists in testing their predictions, but since it has many advantages, it is generally considered the most desirable. In physical science, experimentation is the method most frequently employed in Step 5. It is applied whenever suitable,

but in child psychology—as in other areas of social science—there are many problems for which it is not appropriate or practical.

In its simplest form, the experimental method consists of holding constant all but one of the variables presumably related to a given phenomenon. This particular variable is then manipulated by the experimenter in accordance with his own plans. The purpose of the experiment is to test whether, and how, something else changes as the variable being manipulated by the experimenter (referred to as the independent variable) is changed. To cite a simple example, Boyle's hypothesis about the compression of gases stated that the volume of a gas is "inversely proportional to the pressure." From this hypothesis, it may be predicted that as the pressure applied on a gas is doubled, its volume will be halved. To test this prediction, and thus the hypothesis, the experimenter manipulates and varies the pressure exerted on the gas (independent variable) and then measures its volume (dependent variable). Other relevant variables which are known to influence the volume of a gas, such as temperature, must be controlled; that is, these factors must be held constant during the experiment, because the hypothesis is concerned only with the relationship between pressure and volume. By controlling all other relevant variables, the experimenter can be certain that pressure alone varies and he can therefore be sure that changes in volume are related *only* to changes in pressure.

In a similar way, the psychology experimenter attempts to control all the relevant variables except the one with which he is particularly concerned. He systematically manipulates the independent variable in order to determine its consequents. Suppose, for example, the experimenter wants to test the hypothesis that competitive situations will stimulate better performance on arithmetic tests. His specific prediction is that a group of children who are competing with each other will do better in these tests than a comparable group working without competition.

The prediction may be tested experimentally by setting up two groups of children, one called the *experimental group* and one called the *control group*. Ideally, the experimenter would start with a large group of children and assign half of them, chosen at random, to the experimental group and half to the control group. Under these conditions of assignment, there is little likelihood that the two groups will differ significantly in any variable. However, further to assure comparability of the two groups, the experimenter might also equate them on all variables likely to affect performance in arithmetic, e.g., age, grade placement, arithmetic

ability, intelligence, sex, and health. Thus he could feel confident that the two groups were alike at the beginning of the experiment.

In the experiment proper, the two groups would be subjected to different treatments. A competitive situation could be set up in the experimental group by informing them that the student getting the highest grade on an arithmetic test would be given a prize. In the control group, no such competitive situation would be created. Both groups would then be given the same arithmetic test, and the difference between the performances of the two groups would be determined. If the competing group did better than the other group, the prediction and the hypothesis would be considered verified.

Here the independent variable was competition, and it was regulated by the experimenter. Other important variables were controlled by initial random assignment of children to the two groups and by matching the groups on variables considered likely to affect performance in arithmetic. Therefore we can be fairly certain that the obtained differences between the two groups must be due to the introduction of competition in one group and its absence in the other.

These two examples, one drawn from physical science and the other from social science, make clear the unique advantage of experimental method, namely, the direct demonstration of relationships between variables. Without the use of experimental procedures, we cannot be sure which factors may be most important in determining a particular outcome.

As long as we depend on the observation of occurrences not involving our assistance, the observable happenings are usually the product of so many factors that we cannot determine the contribution of each individual factor to the total result. The scientific experiment isolates the factors one from the other; the interference of man [that is, the experimenter] creates conditions in which one factor is shown at work undisturbed by the others . . . (13, 97).

It is obvious that the experimental method cannot always be used in psychology even though it has great advantages, and is therefore highly desirable. For example, suppose a psychologist has an hypothesis that one of the consequents of rejection is greater proneness to delinquency. He could hardly expect parents to reject their children for experimental purposes. However, the investigator might be able to study a group of children known to have been rejected and a control group of nonrejected children. He would attempt to control for the effects of other possibly relevant variables by equating these two groups as closely as possible in factors such as age, intelligence, sex, health, and socioeconomic status.

822

It would then be possible to compare the delinquency rates in the two groups and hence to determine whether significantly more rejected than nonrejected children commit antisocial acts. If there is actually more delinquency among rejected children, he may conclude that his hypothesis is supported, i.e., that rejection is, in fact, related to delinquent behavior.

The study cannot be considered an experiment in the usual sense, because the experimenter did not manipulate the independent variable, rejection. However, his study was as close to the ideal of an experiment as was possible under the circumstances.

Nevertheless, it must be recognized that the relationship between rejection and delinquency has not been demonstrated as clearly as the relationship between competition and performance on arithmetic tests in the experiment cited earlier. There is still the possibility that some factor not controlled by the experimenter is also an effective determinant of delinquent behavior. For example, rejected children often come from homes where there is a great deal of friction between the parents. In such cases, it is possible that delinquency represents the child's reactions to interparental tensions, rather than to rejection. This is only a possibility, of course, but it illustrates that factors associated with rejection, rather than rejection itself, may account for the observed differences in the delinquency rates of the rejected and nonrejected groups. In the experiment on the effects of competition, on the other hand, we feel more confident of the meaning of the findings. The observed differences between the experimental and control groups must have resulted from the experimenter's manipulation of competition, since all other factors were controlled.

To summarize, the experimental method can be considered the ideal procedure, or method of choice, in the step of verification of hypotheses. It permits the most direct demonstration of relationships between variables. For this reason, it should be employed whenever and wherever it seems feasible. However, under some circumstances, and for some kinds of research problems, the method is not practical, and in these cases, other methods must be used. Other available techniques will be described later in the book in connection with specific studies in which they have been used.

Application of Scientific Findings

The sixth step in the scientific process, *application*, can be carried out legitimately only after the first five steps have been satisfactorily com-

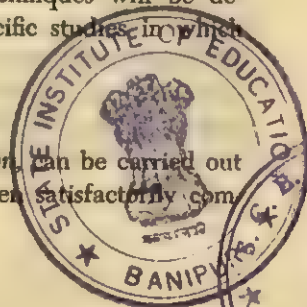
U.S. S. T. W. B. LIBRARY

Date

9.3.99

Accn. No.

4863



pleted. Nevertheless, in many instances, hypotheses have been applied, although there is little scientific evidence to support them. As a matter of practical necessity, pressing social and personal problems must often be tackled, and solutions attempted, before there is a substantial body of pertinent verified principles or facts. For example, educators and clinicians working with disturbed children are frequently forced to use their best judgment in mapping out plans or giving advice about treatment. In such cases, they are often forced to depend on common sense, their own experience, and any theory that seems applicable, even though it may not have been adequately tested. As scientists, however, child psychologists are interested only in the application of verified hypotheses about children.

Most scientists sincerely hope that the results of their endeavors will eventually be useful in advancing human welfare. But they realize that this broad objective can be achieved only by applying knowledge that is derived from sound basic research.'

Specific Characteristics of Child Psychology as a Science

The differences among scientific disciplines are, to a large extent, a function of differences in their language and in the concepts used to describe the phenomena under study. In the physical sciences, there is a high degree of agreement as to the language to be used in describing falling bodies, chemical reactions, and atomic explosions. Child psychology is severely hampered by lack of agreement as to the appropriate terms to use in describing developmental phenomena. Textbooks in the field vary widely in the language used to describe personality development. The present authors have chosen many of their concepts from learning theory. The student should recognize that the choice of these concepts reflects the authors' theoretical biases; the terms employed in this text are not the only—or necessarily the best—ones to use.

Finally, it is important to recognize that psychology is a discipline in which the laws that govern the behavior of the scientist are the same as those that govern the objects of his study (other people). This state of affairs may interfere with an objective and accurate evaluation of the object of study (the child), particularly when the phenomenon under investigation involves interpersonal behavior. Most experiments in child psychology involve an interaction between the experimenter and the child, and the object of study may be influenced in unknown ways. It is, therefore, imperative that the researcher in child psychology be particularly careful to take into account his potential influence on the child during observations, interviews, or test administration. For example, some

studies that are similar in many respects have yielded different results, depending on whether the experimenter was old or young, male or female; for the child may react to an older woman differently from the way he would react to a young man.

TWO APPROACHES TO RESEARCH ON DEVELOPMENT

Ordinarily, psychologists are interested in discovering regularities in human behavior, formulating general principles, exploring interrelationships among variables, or establishing norms of development. To accomplish these purposes, they usually study large groups of subjects, thus employing what Allport has called the *nomothetic approach* (2). Almost all systematic investigations in psychology and social science, such as those to be reported in this book, are *nomothetic*.

Certainly there are characteristics common to all members of the species and general laws which apply to all. Yet no two human beings are exactly alike. The psychological practitioner or educator must center his attention on a particular individual and attempt to understand him thoroughly. This cannot be done simply on the basis of nomothetic knowledge. Complete comprehension of the individual case requires more than an understanding of general principles of growth and development and the uniformities of human behavior.

Studies such as case histories and biographies which stress the individuality of personality are examples of what Allport has labeled the *idiographic*, or individual clinical approach (2). A good case study depicts the individual in all his natural complexity. Idiographic knowledge involves understanding the unique organization of a particular personality, the complex relationships of the individual's heredity and life experiences, and the interactions of his nature and endowments with the specific environment in which he has grown up. "In the human realm we have to *particularize* our nomothetic knowledge before it is of any value and it must be particularized . . . in the light of concrete existing circumstances" (2, 58; italics ours). In other words, generalizations, norms, and verified nomothetic hypotheses demonstrate their value most graphically when they are applied to individual cases.

Both idiographic and nomothetic approaches are necessary and useful in child psychology. A simple illustration may clarify the way in which the two approaches supplement each other. Suppose all the children in a certain school are given an intelligence test. Ten children in the school are found to be mentally retarded, that is, they obtain scores which place

them in the lowest 2 percent of all children their age. The norms (nomothetic data) supply the basis for the diagnosis. But if we are to understand or help any of these children, we must shift from a nomothetic to an idiographic, individual approach. We must ask ourselves: "What are the specific factors underlying this particular child's retardation?"

Again, nomothetic generalizations may provide some leads in the search for the etiology of any particular case. For example, certain physical conditions, such as vitamin deficiency, thyroid or other glandular dysfunctions, may be contributing factors. Brain trauma, high fever, or infection of the nervous system sometimes lead to mental deficiency. Studies have shown that emotional problems often handicap the performance of capable children in tests of intelligence. Children from lower-class homes generally are not so highly motivated to do well in school or on intelligence tests as their middle-class peers. Any one—or any combination—of these factors may be involved in a particular case of mental retardation.

Employing an idiographic approach, that is, studying each individual clinically, enables us to determine the underlying factors in each case and thus to make concrete plans for care or treatment. The combination of nomothetic and idiographic methods makes possible a more complete scientific investigation of single personalities; it enhances the understanding and prediction of individual behavior.

It is obvious that in the present state of psychology the idiographic approach poses many more problems than the nomothetic. As we noted earlier, almost all the studies and experiments reported in this book are based on groups of subjects; that is, they are nomothetic studies. This is at least partially attributable to the fact that there are as yet few idiographic studies in psychology. Scientific traditions in the field have emphasized experimentation with groups, objective measurement, statistical manipulation, and the discovery of relationships between characteristics. In short, methods for dealing with groups and group data are readily available, whereas methods for dealing with the individual case scientifically are not.

Recently, however, there has been some shift in emphasis and a growing trend toward a psychology which endeavors to understand the individual as a unique personality (3, 6). Psychoanalytic and other personality theories, as well as increased clinical work with both normal and abnormal subjects, have been extremely influential in stimulating scientific interest in the individual case.

Generally speaking, the clinician uses nomothetic norms and general-

izations primarily as standards for evaluating the child's observable characteristics. They may also give suggestions as to the nature of the major factors underlying these characteristics. Only through the use of an individualized approach, however, can we specify the many complex forces which have produced the unique personality being studied.

Longitudinal Versus Cross-Sectional Research

Quite aside from the nomothetic or idiographic nature of the data, there are two broad approaches to the study of children, each with its distinct advantages and disadvantages. In the *longitudinal approach* the same group of children is studied repeatedly over an extended period of time, often a decade or longer. This approach is especially valuable in investigations attempting to discover whether such characteristics as high (or low) intelligence, dependency, and behavior problems are stable over long periods of time or subject to fluctuations. The longitudinal approach must be used to study the latent or delayed influences of some early experience on later behavior. For example, current theory about personality development suggests that maternal rejection during the first few years of life will lead to disturbed interpersonal relations during childhood and adolescence. The only way to test the validity of this hypothesis is to select mothers who are rejecting during the early period and observe their children's subsequent social behavior. Obviously, the longitudinal method is expensive, time-consuming, and, therefore, difficult to use.

In the second and more common method, the cross-sectional, the investigator selects a group of children at one age period or different groups of children at different ages and makes his observations for that limited time period. For example, the growth of the bones of the hand can be studied with the cross-sectional method by selecting groups of ten children at each of six ages—2, 4, 6, 8, 10, and 12 years—and comparing the average length of these bones for each of the six groups.

On the other hand, an investigator might use the longitudinal method to answer the same question. He would measure the same group of 60 children at two-year intervals from 2 to 12 years of age and assess the average biannual growth in bone length.

In many cases the cross-sectional and longitudinal methods supplement each other. For example, using a cross-sectional approach, an investigator may find that extremely aggressive 10-year-old boys have fathers who are severely punitive. The investigator may then want to study this phenomenon longitudinally in order to discover when the child started to become aggressive and whether the father's severe

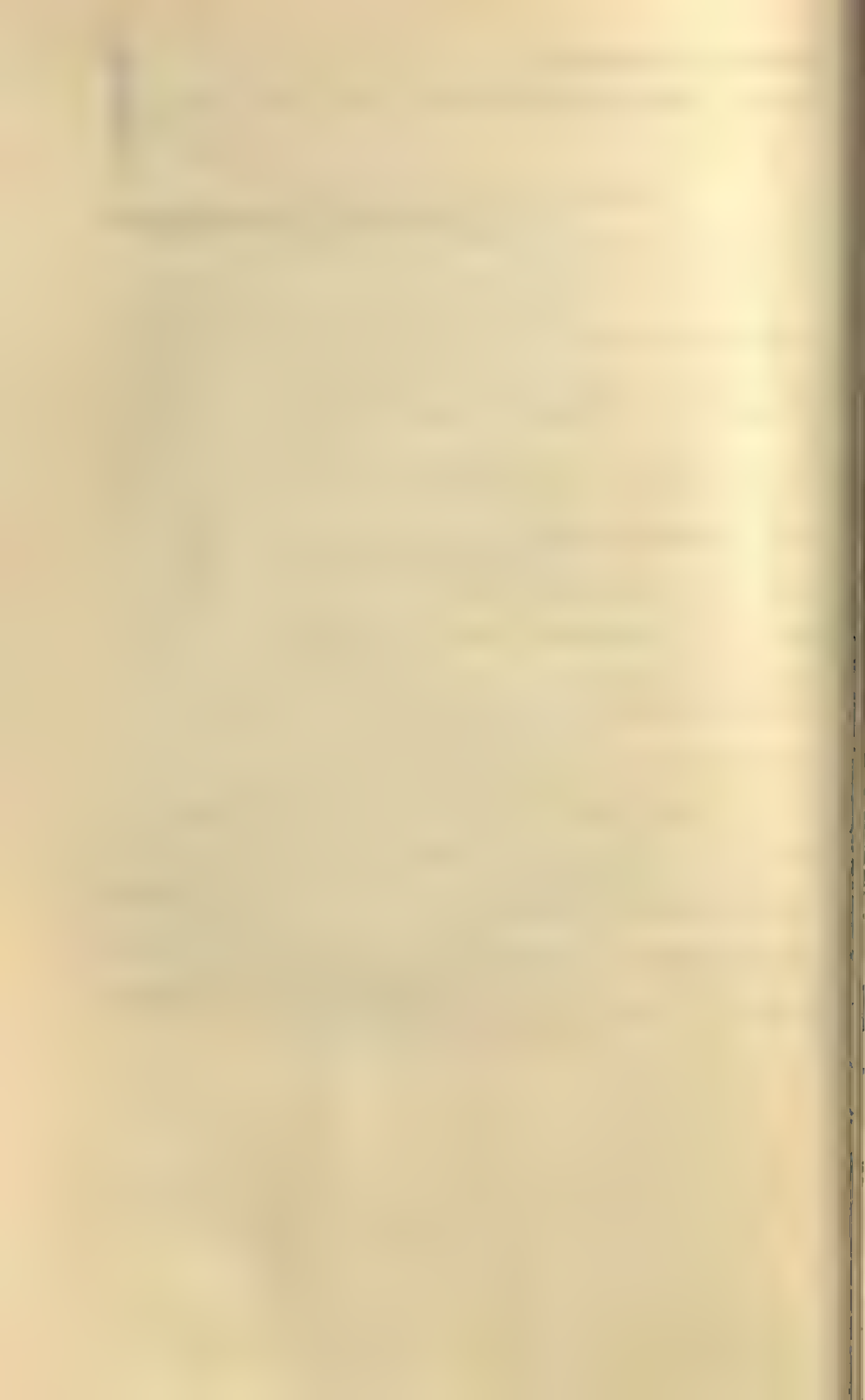
punitiveness occurred before or after the child began to display aggressive behavior.

REFERENCES AND ADDITIONAL READING

1. Alcott, B. Observations of the vital phenomena of my second child. Cited by D. McCuskey, *Bronson Alcott, teacher*. New York: Macmillan, 1940.
2. Allport, G. *The use of personal documents in psychological science*. New York: Social Science Research Council, 1942.
3. Barker, R. G., & Wright, H. F. *One boy's day. A specimen record of behavior*. New York: Harper, 1951.
4. Darwin, C. A biographical sketch of an infant. *Mind*, 1877, 2, 285-294.
5. Dollard, J., & Miller, N. *Personality and psychotherapy*. New York: McGraw-Hill, 1950.
6. Evans, J. *Three men*. New York: Knopf, 1954.
7. Hall, G. S. The contents of children's minds on entering school. *Ped. Sem.*, 1891, 1, 139-173.
8. Locke, J. *Some thoughts concerning education; 1690*. Sections 38 and 40. London: Cambridge Univer. Press, 1913.
9. Mandler, G., & Kessen, W. *The language of psychology*. New York: Wiley, 1959.
10. Marquis, D. G. Scientific methodology in human relations. *Proc. Amer. phil. Soc.*, 1948, 92, 411-416.
11. Nelson, M. M., Asling, C. W., Evans, S. H. M. Production of multiple congenital abnormalities in the young by pteroylglutamic acid deficiency during gestation. *J. Nutrition*, 1952, 48, 61-80.
12. Pestalozzi, G. A father's diary, 1774. Cited by R. De Guimps, *Pestalozzi, his life and work*. New York: Appleton, 1906.
13. Reichenbach, H. *The rise of scientific philosophy*. Berkeley: Univer. of California Press, 1951.
14. Rheingold, Harriet, L. The modification of social responsiveness in institutional babies. *Monogr. soc. Res. Child Developm.*, 1956, 31, No. 2.
15. Rousseau, J. J. *Emile: or concerning education*. 1762. Book 2. New York: Dutton, 1938.
16. Scott, J. P. Critical periods in the development of social behavior in puppies. *Psychosom. Med.*, 1958, 20, 42-54.
17. Tiedemann, D. *Beobachtungen über die Entwicklung der Seelenfähigkeiten bei Kindern*. Altenburg: Bonde, 1787.

PART

THE PRENATAL PERIOD



2

GENETIC FACTORS IN DEVELOPMENT

In our attempt to understand the behavior of the developing child, many factors must be considered. Even the simplest behavior is often the result of many different influences. Basically, these fall into five major categories or agents of influence: (1) genetically determined biological variables; (2) nongenetic biological variables (e.g., lack of oxygen during the birth process; malfunctioning of the pituitary gland); (3) the child's past learning; (4) his immediate social psychological environment (i.e., his parents, siblings, peers, and teachers); and (5) the general social and cultural milieu in which he develops.

The first two areas have been called the *nature* forces; the latter three, the *nurture* or environmental forces. The child's behavior and personality are, at any one time, a product of the continuing interaction of nature and nurture.

Rapid advances are currently being made in the sciences of genetics and physiology and probably there will soon be more accurate knowledge about the influences of heredity and biological forces on behavior. The next two chapters deal with our present state of knowledge, and, as well, offer some best guesses regarding the role of nature in human development.

BEGINNINGS OF LIFE

The life of each individual begins when a sperm cell from the father penetrates the wall of an ovum, or egg, from the mother. As we shall see in some detail in Chapter 3, the fertilization of an ovum by a sperm sets in motion an intricate maturational process, called mitosis. In this process, the original fertilized ovum divides and subdivides until thousands of cells have been produced. Gradually, as the process continues, the resulting cells begin to assume special functions, as parts of the nervous, skeletal, muscular, or circulatory systems. The embryo, which at first resembles a gradually expanding ball, begins to take shape, and the beginnings of head, eyes, trunk, arms, and legs appear. Approximately nine months from

the time of fertilization the embryo, which by this time we call the fetus, is ready for birth.

HEREDITARY TRANSMISSION

Life begins at conception. But what of the forces that, throughout the individual's existence, will influence his development? When do they begin? The answer, again, is at conception. For at the moment that the tiny sperm penetrates the wall of the ovum, it releases 23 minute par-

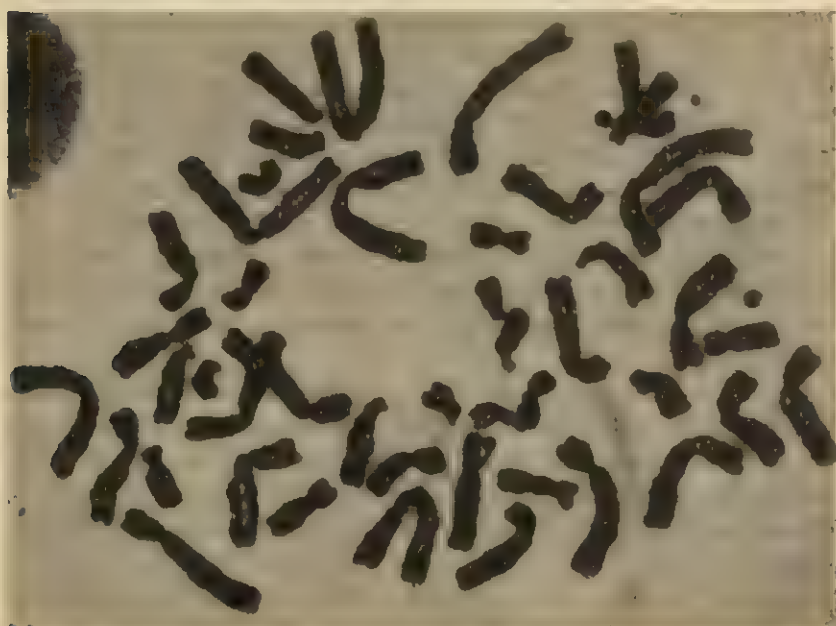


FIG. 1. Metaphase spread from normal human male cell showing the human chromosomes. (Courtesy of Dr. P. S. Moorhead.)

ticles called *chromosomes*. At approximately the same time, the nucleus, the inner core of the ovum, breaks up, releasing 23 chromosomes of its own.

This process is of great interest to us because it has been established through painstaking research, that these chromosomes, which are further subdivided into even smaller particles called *genes*, are the carriers of the child's heredity. All the child's physical heritage from his father and his mother is contained in these 46 chromosomes. (See Fig. 1.)

What is Transmitted?

Long before the geneticists established the existence of chromosomes and genes, scientists were convinced that many characteristics of a child's parents were transmitted to the child at conception. People have, however, differed about what was transmitted and how. For example, one school of thought, dating back to Lamarck, a French zoologist who published a book called *Philosophie zooligique* in 1773, long maintained a doctrine known as the inheritance of acquired characteristics. Lamarck felt that individuals improved or weakened their own physical capacities through experience or training, and that the effects of such changes could be transmitted to their offspring. Thus, by developing a diseased lung or poor digestion, a prospective parent would be hurting his child's chances of being healthy. People began to postulate such notions as that the giraffe acquired his long neck because his ancestors had spent a great deal of time reaching into trees for food, or that the snake lost his legs as a result of his forebears' propensity for creeping through crevices (33, 47).

Nor were such speculations confined only to obvious physical characteristics. Many people believed that a mother could influence her child's chances of being born with a talent for singing, if she had, in her youth, carefully cultivated her own voice. Or that if a father had previously developed an interest in mathematics, this interest was likely to be inherited by his son.

However, such early theories as these, and the inferences based upon them, were dealt a hard blow by Weismann in 1889 (56). He presented evidence suggesting that while the rest of the body may change with increasing age or through exercise, illness, or injury, the germ cells (chromosomes and genes) which an individual harbors, and which are passed on to his children at their conception, do not ordinarily change.

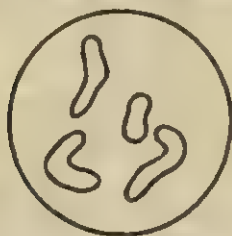
In the main, subsequent research has tended to support Weismann's position. However, it has since been determined that under exceptional circumstances, genes may change or be killed, as for example, through direct radiation from x-ray or from atomic blasts. Nevertheless, genes are not subject to any of the usual influences that either build up or break down our bodies or improve our minds. Thus the genes that a sick but well-educated man of 50 possesses are no different from those that he possessed as a healthy but untutored youth of 17. In short, changes in the rest of the body do not affect the genetic characteristics of the germ cells which are passed on to our children. Hence there is no reason for believing that we can affect our children's biological destinies by engaging in physical education or self-improvement campaigns.

The Mechanisms of Hereditary Transmission

One of the things that must have puzzled parents in prescientific days was why two children of the same parents should be so different physically. The answer lies in the mechanics of hereditary transmission.

If each child received all of both parents' genes, we could not explain individual genetic differences between siblings, since all brothers and sisters would then have identical heredities. The fact, however, is that each child inherits only half of each parent's genes. Moreover, different children in a family may inherit different combinations of their mother's and father's genes. Thus individual differences between them become possible.

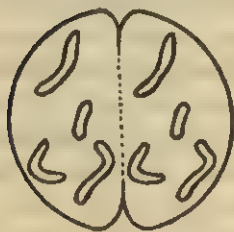
The way in which this happens will become clear as we proceed. It will be recalled that the original fertilized ovum contains 46 chromosomes. As this cell divides to form two new cells, each of its 46 chromosomes also divides in half, by splitting lengthwise down its center (see Fig. 2). Through a process known as *polarization*, the halved chromo-



1. Original cell. (Only four chromosomes shown, for simplification.)



2. Each chromosome splits in half, lengthwise.



3. The halved chromosomes go to opposite sides and wall forms between them as cell begins to divide.



4. The halved chromosomes grow to full size, resulting in two cells, each a replica of the original.

FIG. 2. How a fertilized egg cell multiplies. (From *The New You and Heredity*, by Amram Scheinfeld. Copyright 1939, 1950 by Amram Scheinfeld. Published by J. B. Lippincott Company.)

somes then go to opposite sides of the cell. Thus, when the cell itself divides down the center, the new cells will each contain the same 46 chromosomes as the original cell.

This process is repeated again and again as development proceeds. Even in the completed human being, when the myriad cells of the body have by this time taken on their special functions as tissue, bone, blood, and muscle, each cell still contains a replica of the original 46 chromosomes of the fertilized ovum.

Germ Cells

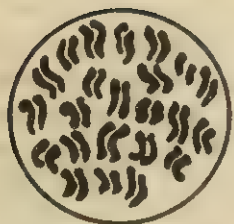
But if this is true, why don't the sperm and ovum, which go to make up a new individual, also contain 46 chromosomes each, since certainly they too are cells? It will be recalled that the new individual receives only 23 chromosomes from each parent.

The answer, stripped of genetic complexities, is actually quite simple. The adult organism contains not one, but two kinds of cells—body cells which go to make up bone, nerves, muscles, and organs; and germ cells, from which the sperm and ova are derived. While the process of chromosome and cell division described above applies to the somatoplasm (the body cells), it does not apply completely to the germ cells. Throughout most of their evolutionary history, the latter develop just as the body cells do. But at the time of their final division into recognizable sperm or ova, the pattern changes. At this point, the germ cells split, but the chromosomes do not. Instead, the 46 chromosomes, which in reality are 23 pairs of similar chromosomes—one pair—member from each parent—simply divide into two groups. One member of each pair goes to one of the resulting sperm or egg cells, and one to the other (see Fig. 3). Thus the ova and sperm have only 23 chromosomes each and the new individual obtains a total of only 46.

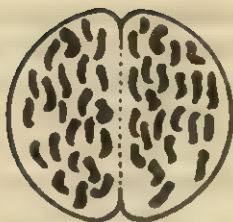
We can see, too, why it is that the children of the same parents do not all have to be alike. As may be seen from Fig. 4, if Sperm A unites with Ovum D, the new individual will possess a different set of chromosomes than if Sperm B unites with it. (Ovum C is indicated in dotted lines since ordinarily at any one conception only one ovum from the mother is ready for fertilization. The same of course is not true of sperm. At any one mating millions of sperm are released—as many as a hundred million in one drop of seminal fluid, any one of which might potentially fertilize the receptive ovum).

Is Identity Possible?

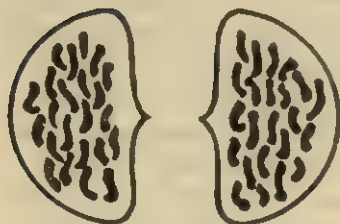
We have seen how it is possible for individuals in the same family to be different in their genetic make-ups. But is identity between siblings



1. Germ cell containing 46 chromosomes.



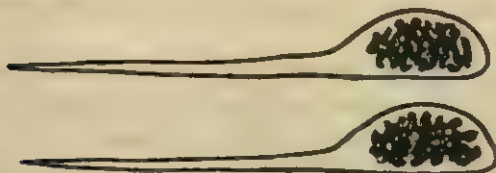
2. The paired chromosomes separate, going to opposite sides of the cell, and the cell divides.



3. There are now two half-cells, with only 23 single chromosomes in each.



4. The chromosomes mass together, and part of the cell contents forms a sheath around them.



5. The sheath shapes the chromosomes into a tightly packed mass forming the head. The rest of the cell contents is squeezed out behind to form the tail.

Fig. 3. How sperms are produced. (From *The New You and Heredity*, by Amram Scheinfeld. Copyright 1939, 1950 by Amram Scheinfeld. Published by J. B. Lippincott Company.)

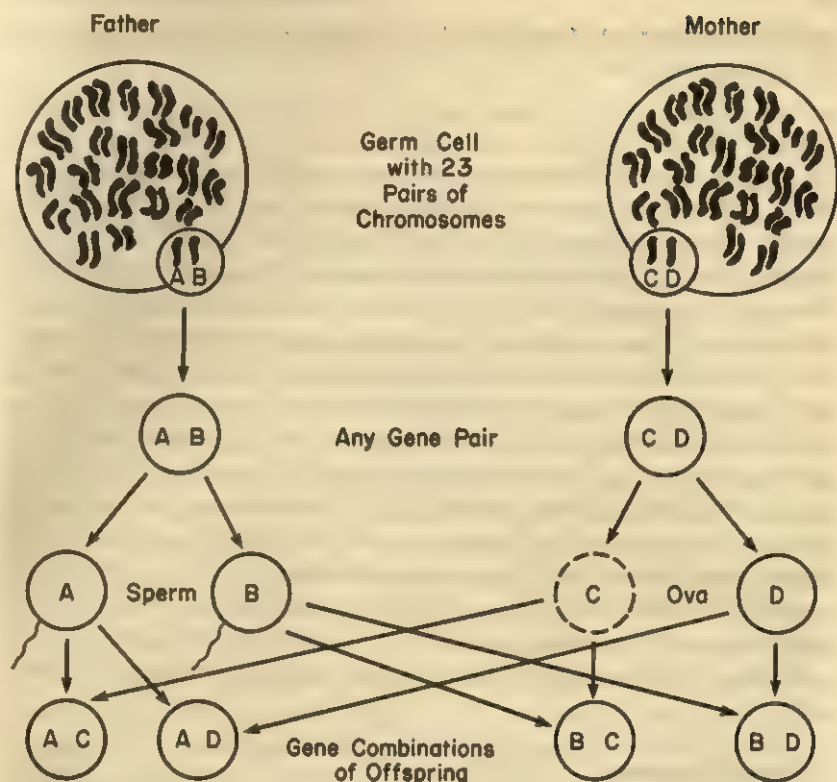


FIG. 4. Schematic diagram showing possible gene combinations of offspring resulting from gene pairs of parents.

possible? The answer, for all practical purposes, is *no*, except in the case of identical twins who actually develop from the same fertilized ovum which only later splits into two individuals.¹ If the 46 chromosomes in the germ cells always divided the same way, with one combination going to one sperm or ovum and the rest to the other, identity would be possible. In fact, it could be anticipated frequently. But these 46 chromosomes do not divide in this way. Except that one member of each of the 23 pairs goes to one sperm or ovum and the other member to the other, the pattern is pretty much random. In other words, the way one pair of chromosomes splits does not determine the way another pair will split. Thus the number of possible combinations of chromosomes contained in the fer-

¹ For an interesting and simple discussion of the way in which identical and fraternal twins are produced, the reader is referred to Scheinfeld (47). Somewhat more technical discussions will be found in general texts by Stern (50) and Gates (14).

tilized ovum, instead of being confined to four, is eight million followed by 23 zeros (50).

Sex Determination

Of the 23 pairs of chromosomes, one pair is called the sex chromosomes and is responsible for determining the sex of the child. In the normal female, both members of this pair are large in size and are called the X chromosomes. In the normal male, one member of the pair is an X chromosome; the second member is smaller in size and is called the Y chromosome. Thus, the body cells of males (except for sperm cells) contain two X chromosomes. One half of the sperm cells of the male contain an X chromosome; the remaining half contain a Y chromosome. When a female ovum, containing an X chromosome, unites, in conception, with a sperm containing a Y chromosome, a male child is produced. When an ovum unites with a sperm carrying an X chromosome, a female child develops. Since one-half of the sperm cells contain X and one-half Y chromosomes, theoretically the odds are 50-50 that a boy or girl will be conceived. There is actually a slight excess of male over female births (106 boys to 100 girls among whites in the United States) and this may mean that Y sperm are more likely than X sperm to penetrate the ovum (50).

The Mendelian Laws

The elementary principles of gene interaction were first worked out by an Austrian monk, Gregor Mendel, in the privacy of his monastery garden in 1857. Mendel worked with two strains of peas, red-flowering and white-flowering. He found that if he mated plants of a pure red strain with plants of a pure white strain, in the second generation all the offspring would be red. But if he then mated these offspring with each other, the third generation would average three red-flowering peas to one white.

Experiments such as this led Mendel to derive a number of general principles about hereditary transmission, often referred to as the "Mendelian laws." These principles have been summarized by Scheinfeld.

1. The inherited characteristics are produced by genes (called by Mendel "factors") which are passed along *unchanged* from one generation to another.
2. In each individual these genes are found in pairs, and where the two genes in a pair are different in their effects, one gene *dominates* the other so that it might be referred to as a "dominant," the other as a "recessive." [In the above example of the two strains of peas, red genes dominate white, so that when both are present in a gene pair, the pea flower will be red.]
3. When seeds are formed in any individual, the members of each pair of

genes *segregate out*, independently of the other pairs, *with just one of every two mated genes* going from each parent to *each offspring* (47, 51, 52).

Mendel's results were largely ignored during his own day. It was not until 1900, sixteen years after the brilliant monk's death, that his work, first published in 1865, was rediscovered, and serious attack on the problems of genetic transmission begun. Subsequent work by many geneticists (20, 34, 47, 51) tended to confirm and vindicate Mendel's theories. Their work also demonstrated, however, that the mechanisms of heredity were often a good deal more complex than they had originally appeared.

For example, they showed that genetic prediction is often complicated by the fact that many characteristics depend on complex combinations of gene pairs, rather than on a single pair. In addition, they found that genes do not simply behave dominantly or recessively but in numerous other ways also, and that their effects may vary under different conditions. A discussion of these complexities is not necessary for our purposes. It is enough to say that it would be much easier to weigh the relative importance of hereditary and other factors in determining human characteristics if all these characteristics were as simple in their hereditary aspects as blossom color and other characteristics studied by Mendel in the pea plant. Some, such as eye color, hereditary baldness in men, some forms of diabetes, and certain kinds of night blindness, are almost as simple; but most are not. Eye color, for example, is determined primarily by a combination of one gene from each parent. Certain types of mental deficiency, on the other hand, seem to depend on a number of pairs of genes being present in a particular combination.

THE NATURE-NURTURE CONTROVERSY

This leads us to the age-old heredity-environment, or nature-nurture controversy (38). In general, it is a controversy that has generated more heat than light.

What human characteristics are due to heredity, what to environment, and what to a combination of the two? Or, stated in more dubious, if more popular fashion, "Which is more important, heredity or environment?"

Apparently, there is some room for debate about these questions, as the challenging statements of the following scientists reveal.

Heredity and not environment is the chief maker of man. . . . Nearly all the misery and nearly all the happiness in the world are due *not* to environ-

ment. . . . The differences among men are due to differences in the germ cells with which they are born (1, 102-103).

Compare this statement with the following:

Give me a dozen healthy infants, well formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select—doctor, lawyer, merchant, chief, and yes, even beggar-man and thief, regardless of his talents, peculiarities, tendencies, abilities, vocations, and race of his ancestors. There is no such thing as an inheritance of capacity, talent, temperament, mental constitution, and characteristics (1, 103).

The statements of both these gentlemen seem rather naïve. To maintain the positions described above, the first author at least would have to deny the possibility of *learning* as a determinant of human behavior, to say nothing of the effects of specific influence from physiological and physical aspects of the environment, such as illness, injury, or malnutrition. And the other gentleman, it seems to us, would almost have to deny that man was a *biological organism* at all—at least one that could vary in its structure and function from one individual to the next.

Determining the Extent of Genetic Influences

Although, as we shall see, there is no doubt that many human characteristics are strongly influenced by heredity, it is often difficult to determine the extent of this influence. By and large, we cannot directly observe the tiny genes in action. Instead, we are forced to infer their presence from their effects, just as Mendel inferred the presence of red-flowering and white-flowering genes from the colors of the blossoms which were produced.

Sometimes this is relatively easy. Let us take the case of a degenerative disease of the nervous system like Huntington's chorea. This disorder strikes in generation after generation of the same family. Its frequency can be predicted by genetic principles, and thus far no one has discovered any environmental variation, either physical or psychological, which can affect its course. Under the circumstances, we can say that the disorder is determined pretty exclusively by genetic factors—in this case, a single dominant gene.

In other cases, however, the situation is by no means so clear. In many instances, a characteristic may be the result either of hereditary or environmental influences, or both. Some newborn babies have faster reaction times than others, and it seems likely that these variations may be due to genetic factors. (For purposes of this illustration, let us ignore the pos-

sibility that prenatal influences also play a part.) However, it has been found that when people are anxious and under psychological stress, their reaction times also speed up. Certain drugs have the same effect. Thus, only through an intensive review of a particular individual's history may we be able to sort out the relative effects of drugs, genetic factors, or psychological influences on his reaction time.

Actually, since we must infer the importance of both genetic and environmental factors from their effects on the individual, the only sure way of determining whether either set of factors plays an important role in a specific condition is to find some way of holding one constant while varying the other. If the condition then also varies, we know that the factor we have varied plays an important role.

For example, in a number of studies, identical twins have been used to control as much as possible for genetic factors. Since they have identical hereditary background, any differences between them may be attributed to environmental influences, e.g., different experiences. Newman, Freeman, and Holzinger (35) have used this method to study the effects upon personality of rearing children (of the same genetic make-up) in different home environments. Some of this work will be discussed shortly.

In other studies, particularly those with animals (where by controlled mating it is possible to experiment on genetic factors), the physical and psychological environments are held as constant as possible, and the effects of varying heredity are noted (37). In cases where we are unable to hold most of the factors constant, we can only make, at best, intelligent guesses concerning the relative importance of genetic or environmental influences.

PUTTING GENETIC DETERMINANTS INTO PERSPECTIVE

The general question of which is more important in the development of a specific characteristic, heredity or environment, is a rather meaningless one. First, we must define the characteristic with respect to which the question is asked. Is it eye color, baldness, intelligence? The relative influences of heredity and environment differ markedly from one characteristic to another.

We must also ask under what conditions the characteristic is being manifested. This is particularly important in the case of behavioral characteristics. Take, for example, the task of determining the hereditary

and environmental antecedents of illiteracy. As Haldane (16) has pointed out, the answer need not always be the same.

. . . among adults in England under 40 years of age, illiteracy is probably most often due either to mental deficiency or to blindness. But among adults in Elizabethan England, or in India today, illiteracy may be attributed primarily to the lack of educational opportunity. (22, 583).

Obviously, under these differing conditions the relative contributions of heredity and environment to illiteracy will not be the same.

Or take another example, closer to the concerns of this book. Suppose that a child fails a reading-readiness test, of the type given children prior to admission to the first grade in school. If the child is suffering from cerebral sclerosis, a form of mental deficiency which is dependent on the coexistence of two specific recessive genes, heredity could reasonably be called the "more important" contributor to his failure. No amount of superior medical care, and no amount of training by his mother or teacher could overcome the disabling effects of the disease. On the other hand, if the child shows no evidence of specific hereditary deficiency, but has lived an isolated mountain life with illiterate parents, and later with proper training passes the test, environment would obviously be the more important determinant of his original failure.

In other words, it is impossible to make general statements, such as "People are 60 percent the result of heredity, and 40 percent the result of environment." However, at the level of specific cases such as those just described, it is often possible to answer, at least partially, questions about the relative importance of hereditary and environmental factors. "The question of the relative importance of nature and nurture has no general answer, but . . . a very large number of particular answers" (16).

But even when we make such statements of relative importance in specific instances, we are never saying that either heredity or environment is unimportant.

The hereditary "determiners" or genes cannot function unless the various aspects of the environment play their necessary roles. On the other hand, the influence of environmental factors is subject to very definite limitations, for (to cite one example) no normal environmental force can change an individual with chromosomes of one species into an individual with the characteristics of another species (22, 583).

Thus, the specific effect of the interaction of hereditary and environmental forces will differ for different behaviors and different structural

characteristics. Moreover, the important question is not *what* behaviors are influenced by heredity, but *how* the genes are able to exert this influence.

The traditional questions about heredity and environment may be intrinsically unanswerable. Psychologists keep asking *which* type of factor, heredity or environment, is responsible for individual differences in a given trait. Later, they tried to discover *how much* of the variance was attributable to heredity and how much to environment. . . . A more fruitful approach is to be found in the question, "How?" (2, 197).

That is, it is not sufficient to know that a small body frame or high intelligence are inherited; we must determine the many complicated biological processes that are triggered into action as a result of possessing the genes associated with body size. Do genes affect growth through influencing hormonal action, through direct action on bone or muscle, or through a combination of these actions? When we have the answers to specific questions as these, we will have a more complete understanding of what it means to say that a trait is inherited. Unfortunately, there are not many clues to help us in understanding the ways in which a gene or combination of genes produces specific behaviors.

At present we do not know how the individual's chromosomal content influences the development of the child's behavior. The problem is unusually complex, for the influence of heredity upon behavior is always indirect; no behavior is ever inherited as such. The inheritance of a physical deformity may eventually lead to feelings of inferiority, but it would be nonsense to say that such feelings are inherited. In actuality, inherited characteristics (skin color, physique, biochemical processes) influence psychological variables in many subtle ways.

To cite a few simple examples, genetic forces determine whether an individual is a man or a woman; they help to determine whether he is tall or short, fat or thin, handsome or ugly, sluggish or high-strung. They may influence his resistance to various diseases, and set limits beyond which his intelligence cannot develop.

Since heredity acts directly only upon the individual's biological characteristics, it cannot itself produce a child's jealousy of its mother or an enthusiasm for space guns and rocket ships. These attributes, necessarily depending in part upon learning through interaction with particular objects in the environment, cannot be entirely and simply determined by heredity. Heredity may play a role, however, since it helps to produce the kind of individual who is doing the learning. For example, it may help to influence whether an individual becomes a heavyweight boxer or

a jockey, through its influence on the biological mechanisms determining the person's height and weight.

RESULTS OF HUMAN GENETIC RESEARCH

As a result of the difficulties inherent in much genetic research with humans, there are large gaps in our knowledge of the role of heredity in human development. Nevertheless, progress is being made. A brief summary of the findings from some of the more pertinent studies in this area will be presented here.

Much of this research has employed the so-called twin-study method. In this type of approach, an attempt is made to control environmental influences, thus making it possible to note whether genetic factors alone will produce variations in the phenomenon under study. In the case of intelligence, for example, the performances of identical twins on intelligence tests may be compared with those of fraternal (nonidentical) twins or other siblings. The assumption here is that the environments of fraternal twins or other siblings are as similar as those of identical twins. In this way, the possible effects of environmental factors on IQ are considered to be controlled. Consequently, if identical twins are found to resemble each other more closely in IQ than fraternal twins or other siblings, it is concluded that genetic factors affect intelligence. The greater similarity in the IQ scores of the identical twins is considered to be due to the fact that these twins have exactly the same heredity, whereas fraternal twins and other siblings do not.

However, a word of caution about this type of reasoning is necessary. It should be readily apparent to the reader that the environmental influences to which two children are exposed will differ somewhat, even though they are both raised in the same family. Furthermore, it appears that these environmental influences may differ, at least in some respects, more for fraternal twins or other siblings than for identical twins.

Several studies have shown that identical twins spend more time together, enjoy more similar reputations, are more likely to be in the same classrooms, have more similar health records, and in many other respects share a more common physical and social environment than that ordinarily experienced by fraternal twins (22).

Thus the assumption in twin studies like the one described above, that the possible effects of environment have been adequately controlled for, may not always be justified. In a few studies, an attempt has been made to avoid this problem by comparing identical twins reared apart with fraternal twins or other siblings reared together. If, in this instance, iden-

tical twins still resemble each other more closely than fraternal twins or other siblings, it may be concluded that genetic factors are playing a role. It would be highly improbable in such a case that the environments of the identical twins would be more similar than those of the fraternal twins; hence environmental similarity could not account for the closer resemblance of identical twins. Thus findings of greater similarity among identical twins must be considered the result of genetic rather than environmental factors.

In evaluating the results of many of the twin studies which follow, the possibility that environmental variations may be accounting for some of the differences observed must be considered. It is also true that in several of these studies, the number of subjects used was quite small; and final judgment should be withheld until an adequate number of cases have been accumulated.

Physical Features

An individual's physical features depend heavily upon his heredity. Birth injury may alter the shape of his face, disease may whiten his hair. But the color of a person's eyes; the shape of his nose; the pigmentation of his skin; the color, curliness, and stiffness of his hair, are typically a direct function of the genes he has inherited. Some features, such as eye color, depend upon quite simple combinations of genes. Others, such as skin color, are more complex.

For the most part, variations in physical features within the American population bear little relation to an individual's biological ability to adapt to the demands of living. An individual with brown eyes can see as well as one with blue. An individual with fair skin may have greater difficulty with sunburn than an individual whose skin has more pigment to protect it. But the principal effects of variation in physical features upon the individual's adjustment are not biological, but social and psychological. People do not always treat a person with one skin color the same way that they would treat another of a different hue. Nor do they always respond similarly to people with hooked noses and straight noses. The ugly duckling and Snow White encounter different social reactions. Knowledge of the ways in which people with different features are often treated in our society is essential to a proper understanding of personality development, as we shall see later.

Anatomical Traits

Although body form and structure are more subject to nonhereditary influences—such as nutrition, climate, exercise, and even occupation—

than are physical features, there is evidence to suggest that hereditary factors are also of great importance. For example, in their classic study of twins, Newman, Freeman, and Holzinger (35) found that among twins who were raised together, identical twins were consistently more alike than nonidentical twins on measures of height, weight, hand length, and hand width. They also found that, except in the case of weight, identical twins reared in different environments resembled each other more than nonidentical twins reared together.

In another study, the physical development of children born to two large-sized parents was compared with the development of children born to two small-sized parents. The measure of parental body size was the width of the rib cage, a characteristic which appears to be genetically influenced and closely related to the amount of muscle and bone the individual possesses. The children born to large parents, in comparison to those born to small ones, were taller and heavier from birth through 17 years of age (13).

Finally, a study of adult identical and fraternal twins (average age in the twenties) revealed that some aspects of body form have a genetic component. Specifically, a long, thin body build (known as ectomorphy) showed greater similarity between identical than between fraternal twins, especially for females (36).

On the other hand, environmental factors may exert important influences on some body growth patterns. For example, it has been found that within one generation, the children of Jewish and Japanese immigrants exceeded their parents' height by an average of 2 inches (4). Other research suggests that obesity may be more frequently the result of dietary problems than of glandular disorders or hereditary factors (6). What is more, the antecedents of overeating appear to be intimately related to such psychological factors as "parental overprotection . . . and to deprivation of satisfying outlets and contacts so that for the child, food intake assumes inordinate importance" (53, 276).

Physiological Traits

There is an intimate relationship between physiological and psychological processes. For example, while fear and anger generally elicit rises in blood pressure, dryness of the throat, and increases in pulse rate, there are wide individual differences in the intensity of these reactions. Equally disturbing psychological events may have more severe—and perhaps more persistent—effects on a person with a highly reactive nervous system than on a person with a less reactive one. It is therefore important

for the student of personality development to know the extent to which differences in physiological and neurological functioning are genetically determined.

Various investigators have used the twin-study method to investigate the role of genetic factors in determining physiological and neurological functioning. They have, for example, been able to show that while environmental influences are important in determining such physiological functions as blood pressure and pulse rate, genetic factors are important too. In one study (32), the average difference in blood pressure (expressed in millimeters of mercury) between identical twins was 5.1, as compared with 8.4 for nonidentical twins. Similar findings were obtained for the pulse rate. The closer correspondence between the blood pressures and pulse rates of identical twins suggests that heredity may play a role in determining these characteristics.

In a more elaborate setting, Jost and Sontag (23) studied the similarities in seven neurological and physiological measures, using pairs of identical twins, pairs of "unrelated siblings" (i.e., singletons with the same parents) and pairs of unrelated children. These measures included such factors as breathing rate, blood pressure (systolic and diastolic), salivation, perspiration, and pulse rate. All the measures were combined into one score, an *index of autonomic stability*.

They then correlated² the paired individuals in the three groups on the various measures. The scores of each twin were correlated with those of his partner, those of each child with those of his siblings, and those of the unrelated children were correlated with each other. The scores of identical twins were consistently much more closely related than those of siblings. Sibling scores in turn were more alike than those of unrelated children. The finding that identical twins resemble each other most closely on these measures suggests "that there is a genetic factor in autonomic nervous system functioning" (23).

The results of such studies may help to explain the development of a number of so-called psychosomatic conditions, such as ulcers or high blood pressure. For example, under psychological stress, some individuals become hypertensive (develop high blood pressure), while others do not react this way. Genetic factors may be involved in predisposing some individuals to such conditions.

AGE OF FIRST MENSTRUATION. Another physiological trait which seems

² Mathematically, a correlation coefficient of zero means that there is no relationship between two sets of measures. A coefficient of 1.0, on the other hand, indicates a one-to-one, or perfect, relationship. Partial relationships are expressed by coefficients ranging from zero to 1.0.

to be partly a function of heredity, and which has considerable psychological significance, is age of first menstruation (50). It should be obvious that delay in menstruation, or premature menstruation, relative to her contemporaries, would have important implications for the girl's psychological adjustment. In one study (44), it was found that the average difference in age of menstruation was 2.8 months for identical twins, 12 months for nonidentical twins, 12.9 months for non-twin siblings, 18.4 months for mother and daughter, and 18.6 for unrelated women. Of course, as in most genetically influenced characteristics, environmental forces also play a role in age of menstruation.

LONGEVITY. Longevity is, of course, conspicuously influenced by all sorts of environmental factors, including accidents; but genetic influences seem to play a part. A study of the intrapair differences in the life span of deceased twins who died after the age of 60 revealed an average difference in the life span of 36.9 months for identical, and 78.3 months for nonidentical twins. The number of subjects used in this study was small, but the results are suggestive (29).

Motor Ability

Several investigators (5, 50, 55) have found that the height which twins could jump (at age 4 to 4½), as well as the ages of first beginning to sit up and of first walking, were all much more similar for identical twins than for nonidentical twins. Again the number of subjects in these studies was too small to permit a final conclusion, but the results are suggestive. The eye movement patterns used in reading have been found to be significantly more alike in identical twins than in fraternal twins (50).

Physical Defect and Disease

In such conditions as certain types of diabetes, hemophilia (inability of the blood to clot properly when an individual is cut), and some types of visual and hearing defects, hereditary factors have been shown to be highly important. In other conditions, however, the question of hereditary predisposition is the subject of much controversy, although there is little concrete evidence. Such conditions include various allergies, high blood pressure, some kinds of cancer, stomach ulcers, and tuberculosis. It seems probable that there are many physical diseases which are dependent on a complex combination of hereditary and environmental factors.

Mental Defect and Retardation

There are several genetically determined disorders that lead to gross defect or deterioration in intelligence. One of these, called *infantile amaurotic family idiocy*, results from a peculiar hereditary defect in the nerve cells of the brain and spinal cord. The cells swell and fill with fat, and blindness, paralysis, and mental deficiency result. In most cases, death occurs several years after the onset of the disease. This disorder appears to be caused by the inheritance of a specific recessive gene from both the mother and father, and occurs most often when the parents themselves are close relatives (50).

Another inherited syndrome for which the physiological processes have been worked out in more detail is called *phenylketonuria* (21). Children with this disease lack an enzyme which is necessary for normal metabolic functioning. In the absence of this enzyme, a toxic chemical accumulates in the body and leads to damage to the nervous system and mental deterioration. However, medical researchers have discovered that the harmful effects of this disease can be minimized if it is diagnosed early and the diseased infant is fed a special diet. The optimistic note in this discovery is that even in cases of a genetically determined malady it is not necessary to assume that the disease process is completely irreversible (18, 19).

Mental Disorder

The role of genetic factors in the development of mental disorder has been, and continues to be, a source of much heated controversy in the field of psychiatry. There is general agreement that certain forms of mental disorder such as general paresis (syphilis of the central nervous system), are caused by infection or similar agents attacking the body from without. Some other rather rare forms of mental illness (such as Huntington's chorea) result from definite genetic factors, usually quite simple in their genetic structure.

There is considerably less agreement when it comes to the vast majority of cases of mental disorder, those falling into the two categories of (1) the "functional" psychoses (severe mental disorders without known organic cause), and (2) the psychoneuroses (the milder forms of mental disorder and maladjustment). Some experts (24, 27, 28, 30) tend to view these disorders as primarily genetic in origin. Others tend to view them as almost entirely dependent on environmental factors, usually early life experiences.

Why is there so little agreement? In order to provide a concrete basis

for discussion, let us consider one of the commonest forms of functional psychosis, namely, *schizophrenia*. This illness, manifested by severe defects in logical thinking and in emotional responsiveness, probably comes closest to the average person's idea of what it means to be "crazy." It accounts for the occupancy of more hospital beds in the United States than any other form of illness, mental or physical.

Schizophrenia has been attributed exclusively to hereditary defects by some authors, and exclusively to disturbances in early parent-child relationships by others (3). Most psychiatrists consider schizophrenia a total reaction of a biological organism to its environment, although they may differ widely concerning the relative importance attributable to heredity and environmental influences in its determination.

There are several reasons for this difference of opinion. For one thing, the diagnosis of most mental disorders, including schizophrenia, is based upon a rather vaguely defined constellation of behavioral symptoms. One cannot apply any simple test (as, for example, one can in the case of tuberculosis) in order to determine the presence or absence of the disorder. As a result, it is often difficult to make a diagnosis of schizophrenia, and disputes over diagnosis are not uncommon, particularly when the presenting symptoms are not severe.

There is no simple explanation applicable to all cases of schizophrenia. Kallmann (25) has used the twin-study method to investigate genetic factors in schizophrenia. Using 794 patients, who had twin siblings available for examination, Kallmann then studied the relative incidence of schizophrenia among the patient's relatives. He found that the more closely one is genetically related to a schizophrenic, the greater are one's chances of developing the disorder. He concluded that "the predisposition to schizophrenia—that is, the ability to respond to certain stimuli with a schizophrenic type of reaction—depends on the presence of a specific genetic factor which is probably recessive . . ." (25). However, even Kallmann's data suggest the importance of environmental factors. For example, he found that the monozygotic (identical) twins of schizophrenic patients developed the disorder also in about 91 percent of the cases when the twins were raised in the same general environment, but in only 78 percent of cases when raised in different environments.

Other investigators believe that the term schizophrenia refers to more than one disease process and that some forms are more strongly influenced by genetic factors than others. In particular, it is believed that the sudden development of a schizophrenic breakdown, with no trace of this illness in the individual's previous life history (so-called reactive

schizophrenia) is apt to be minimally influenced by genetic factors. The contribution of genetic factors is assumed to be greater in cases where individuals have shown pathological symptoms for many years prior to the breakdown (so-called process schizophrenia). A recent study of 37 pairs of identical twins, one or both of whom were schizophrenic, suggested that when both twins were schizophrenic, there was a greater likelihood of the twins showing a long history of mental illness. This was less likely to be true when only one of the twins became schizophrenic. Moreover, when both twins were schizophrenic, in contrast to only one of them developing the disease, there was a much higher incidence of schizophrenia in the families of the twins (46). The author concluded that there are at least two broad groups of schizophrenia (reactive and process), and that the genetic contribution to the former was minimal, but to the latter, considerable (46).

Similar investigations of genetic factors in manic-depressive psychosis have been made by a number of authors (28). This disorder, which is marked by (either or both) an acute press of activity and excitement (mania) or by an unreasonable melancholia (depression) (30), accounts for about 12 percent of the entire resident population of mental hospitals (as compared with 45 percent for schizophrenics) (30). A summary (28) of the findings of a number of twin studies of manic-depressive psychosis suggests that genetic factors may be involved in predisposing an individual to this disorder.

More precise knowledge of the role of genetic and other factors in various mental disorders must await future research. Probably the most generally accepted opinion among psychiatrists at present is that genetic factors may play a role, at least in some cases of schizophrenia and manic-depressive psychosis, but that other factors, physiological, psychological, and social, are also of vast importance.

Intelligence

The meaning and measurement of intelligence will be discussed later in this book. For the present, we would simply like to summarize a few of the studies which are most pertinent to demonstrating the operation of genetic factors in intelligence.

A number of studies have compared the levels of performance of identical and fraternal twins on intelligence (IQ) tests (22). In the Newman, Freeman, and Holzinger study previously cited (35), there was an average difference in IQ of 9.9 points for pairs of fraternal twins, and of only 5.9 points for pairs of identical twins. Other studies have also

revealed that identical twins are consistently more similar in IQ than fraternal twins (35, 45, 52).

As Jones (22) points out, such results would be expected if twin similarities were primarily genetic, but we must also take into account the possibility of a greater degree of environmental as well as genetic similarity for the identical twins. It will be recalled that in several studies, identical twins have been shown to lead more similar lives and to be exposed to more common experiences than fraternal twins.

More definitive findings regarding the role of genetic factors in determining intellectual status may be expected from comparisons between fraternal twins reared together and identical twins reared apart. Newman, Freeman, and Holzinger (35) found a higher correlation between the IQ's of identical twins raised in different environments (.76) than between those of nonidentical twins reared together (.63). In other words, since it seems highly unlikely that the relevant features in the environments of identical twins reared apart were as similar as those of fraternal twins reared together, one is forced to the conclusion that heredity is one of the important determiners of intellectual performance.

In a recent study using a test of performance (nonverbal) intelligence, a correlation of .77 was found between 40 pairs of *identical twins reared apart*. This is an unusually high correlation and further implies a genetic component in intellectual ability (48).

Still another approach to the problem of genetic factors in intellectual performance involves the study of children in foster homes. In general, the average correlation between children's IQ's and those of their natural parents ranges between .50 and .60. This degree of relationship may then be compared with the correlation between foster children's intelligence and that of their foster parents. If we find that the latter correlation is significantly lower than .50 (i.e., that foster children resemble their foster parents much less than natural children resemble their parents), we may infer that hereditary factors account for the greater similarity between true parents and their children.

In one such study, Burks (7) obtained the IQ's of 204 school-age foster children, all of whom had been placed in foster homes before 12 months of age. In addition she obtained the IQ's of the children's foster parents.

A control group of 105 children who were living with their true parents was then also set up, and the IQ's of these "true" children and their parents were also obtained. Thus Burks was able to compare the correlations in IQ between foster parents and their children, with those between

true parents and their children. A similar approach was used by Leahy (31). Figure 5, showing the results of both these studies, demonstrates that the relationships between children and their own fathers and mothers were higher than those between children and their foster parents.

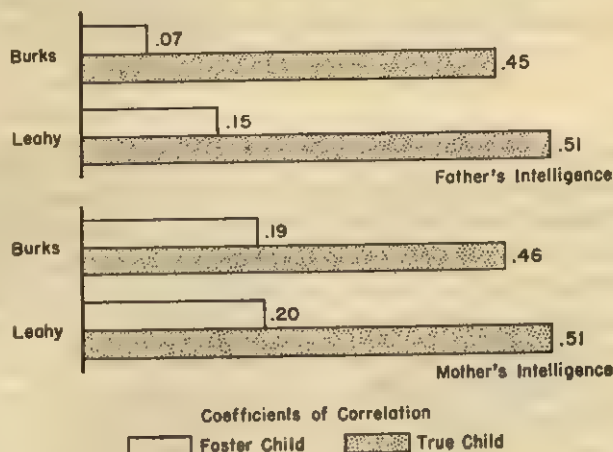


FIG. 5. A comparison of foster and true parent-child correlations. (After H. E. Jones, Environmental influences on mental development. In L. Carmichael (Ed.), *Manual of child psychology*. New York: Wiley, 1946.)

Another investigator (17) compared the relationships between adopted children's IQ's and the estimated intelligence of the children's true and foster parents. The estimate of parental intelligence was based on amount of formal education. Up to age 4, education of either true or foster parent was not significantly related to the IQ of the child. From age 6 on, however, the correlation between the adopted child's IQ and the education of his true mother and father was about $+ .35$, while the corresponding correlation between foster parents' education and child's IQ was approximately zero.

The differences in correlation which are apparent in all these studies might well have been greater were it not for the fact that "when placement officers have knowledge of the cultural circumstances of the true parents, this is likely to influence their choice of foster homes" (22). In other words, when adoption agencies can estimate the intelligence of the child's true parents, they are likely to try to place the child with a foster family of similar intellectual status. This practice should tend to increase

the correlation between the IQ's of children and their foster parents. Despite this, the true parent-child correlations were higher than those between foster parents and their foster children in all the studies.

While environmental factors are important (as we shall see later) in raising or lowering a child's level of intellectual performance, these studies demonstrate that they can only do so within definite limits set by heredity.

Personality

Probably largely because of the technical difficulties involved, less work has been done in the area of genetic effects on personality (as distinct from mental illness) than in any other area of human genetics (42).

In one study, Pearson (40) found that the average correlation between siblings for traits such as vivacity and temper was .52. These family resemblances in personality traits were comparable to those which he found for physical traits, such as height, eye color, and hand movement. According to Pearson, "We are forced to the conclusion that the physical and psychical characteristics in man are inherited within broad lines in the same manner and with the same intensity" (40). To this conclusion, however, Jones notes the important objection that "a given degree of resemblance may (theoretically) be obtained not only through the influence of a common heredity, but also through the effects of living in a common environment . . ." (22).

Since it was impossible to separate out the effects of these two types of influence in this study, no immediate inferences can be drawn as to causal factors (6).

In another study, an attempt was made to separate out the effects of variations in heredity from those of environment. Using the twin-study method, Newman, Freeman, and Holzinger (35) found that on a number of tests of personality and temperament "the correlations of identical twins are but little higher than those of fraternal twins" (35). Since in the same study, these authors found considerably higher correlations for the identical twins on physical traits (and to a lesser extent on intelligence), they conclude: "These seem to indicate that inheritance is a greater factor relatively in producing likeness or difference in some traits than in others" (35).

In a similar study, a large battery of tests was given to over 600 children 10 to 15 years of age. The group included identical twins raised together, fraternal twins raised together, nontwin siblings raised together and apart, unrelated children raised together, and a sample of the

general population. Using a complex statistical technique, the authors attempted to determine which traits were genetic by noting those tests in which the identical twins obtained scores more similar to each other than fraternal twins. Intelligence showed the clearest indication of genetic influence. The dimensions that appeared to be somewhat influenced by heredity were related to the traits of timidity and conformity, in contrast to rebellious tendencies. Most of the traits studied did not reveal a genetic influence (10).

In a very recent investigation of 34 pairs of identical and 34 pairs of fraternal twins (ages 14-18) there was some evidence for a genetic factor in introversion (15). The investigator administered two different types of personality tests to all 68 pairs of twins (the pairs were of like sex) and attempted to discover whether the identical twins were more similar on some of the traits than the fraternal or nonidentical twins. The possibility of a genetic component in the tendency toward introversion was suggested by the fact that there was a greater similarity between the answers of identical twins than between those of fraternal twins on questions that tapped soberness versus enthusiasm; wishing to avoid people rather than desiring to be with others; and brooding about one's problems (15).

In addition to the psychological characteristics mentioned here, there are other aspects of animal and human functioning that appear to have a genetic component. The interested student is referred to Fuller and Thompson (12) and Stern (50) for a more detailed summary of relevant studies.

In general, we know little about the effects of genetic forces on the many complex aspects of human personality. The establishment of intra-familial similarity for a specific trait, such as introversion, may suggest that hereditary factors are important, but it is often impossible to estimate the extent to which similar environmental treatment and experiences are responsible for the similarity in behavior between siblings or twins. As noted earlier, one of the best research strategies for overcoming this difficulty is to compare identical twins reared apart with identical and fraternal twins reared together. But locating large samples of identical twins separated at birth is not an easy task.

However, even when one discovers a high degree of behavioral similarity between genetically identical or similar individuals, the final proof of inheritance must await the discovery of the biological processes that link the action of the genes with specific psychological characteristics (e.g., predisposition to fear, alertness). Correlational studies are not

satisfactory to the scientist because they do not answer the crucial question, "How did this relationship come about?"

REFERENCES AND ADDITIONAL READING

1. Allport, G. *Personality: a psychological interpretation*. New York: Holt, 1937.
2. Anastasi, A. Heredity, environment and the question "How?" *Psychol. Rev.*, 1958, **65**, 197-208.
3. Bleuler, E. *Dementia praecox or the group of schizophrenias*. New York: Int. Univer. Press, 1950.
4. Boas, F. *Changes in bodily form of descendants of immigrants* (U. S. Senate Document 208). Washington: Government Printing Office, 1911.
5. Bossik, Proc. Maxim Gorki med.-biol. res. institute. **3**, 1934. Cited by Stern, C., *Principles of human genetics*. San Francisco: W. H. Freeman, 1949.
6. Bronstein, I. P., Wexler, S., Brown, A. W., & Halpern, L. J. Obesity in childhood. *Amer. J. Dis. Child*, 1942, **63**, 238-251.
7. Burks, B. S. The relative influence of nature and nurture upon mental development: a comparative study of foster parent-foster child resemblance and true parent-true child resemblance. *27th Yearbook. Nat. soc. Stud. Educ.*, 1928, Part I, 219-316.
8. Cameron, N., & Magaret, A. *Behavior pathology*. Boston: Houghton Mifflin, 1951.
9. Cattell, R. B., Blewett, D. B., & Beloff, J. R. The inheritance of personality: a multiple variance analysis determination of approximate nature-nurture ratios for primary personality factors. *Amer. J. hum. Genet.*, 1955, **7**, 122-146.
10. Cattell, R. B., Stice, G. F., & Kristy, N. F. A first approximation to nature-nurture ratios for eleven primary personality factors in objective tests. *J. abnorm. soc. Psychol.*, 1957, **54**, 143-159.
11. Frischeisen-Kohler, I. *Das Personliche Tempo, Eine erbhislogische Untersuchungen*. Leipzig: Thieme, 1933.
12. Fuller, J. L., & Thompson, W. R. *Behavior genetics*. New York: Wiley, 1960.
13. Garn, S. M., Clark, A., Landkof, Lina, & Newell, Laura. Parental body build and developmental progress in the offspring. *Science*, 1960, **132**, 1555-1558.
14. Gates, R. R. *Human genetics*. Vol. II. New York: Macmillan, 1946.
15. Gottesman, I. I. The psychogenetics of personality. Unpub. doctoral dissert. Univer. of Minnesota, 1960.
16. Haldane, J. B. S. *Heredity and politics*. New York: Norton, 1938.
17. Honzik, Marjorie P. Developmental studies of parent-child resemblance in intelligence. *Child Developm.*, 1957, **28**, 215-228.
18. Horner, F. A., & Streamer, C. W. Phenylketonuria treated from earliest infancy. *A. M. A. J. Dis. Child*, 1959, **97**, 345-347.
19. Horner, F. A., Streamer, C. W., Clader, D. E., Hassell, L. L., Binkley, F. L.,

- & Dumars, K. W. Effect of phenylalanine restricted diet in phenylketonuria II. *A. M. A. J. Dis. Child*, 1957, 93, 615-618.
20. Jennings, H. S. *Genetics*. New York: Norton, 1935.
 21. Jervis, G. A. The mental deficiencies. In Arieti, S. (Ed.), *American handbook of psychiatry*. Vol. II. New York: Basic Books, 1959, 1289-1316.
 22. Jones, H. E. Environmental influence on mental development. In L. Carmichael (Ed.), *Manual of child psychology*. New York: Wiley, 1946, 582-632.
 23. Jost, H., & Sontag, L. W. The genetic factors in autonomic nervous system. *Psychosomatic medicine*, 1944, 6, 308-310.
 24. Kallmann, F. J. *The genetics of schizophrenia*. New York: Augustin, 1938.
 25. Kallmann, F. J. The genetic theory of schizophrenia. *Amer. J. Psychiat.*, 1946, 103, 309-322.
 26. Kallmann, F. J. Psychogenetic studies of twins. In Koch, S. (Ed.), *Psychology: study of a science*. Vol. 3. New York: McGraw-Hill, 1959.
 27. Kallman, F. J. Genetic aspects of psychosis. *The history of mental health and disease*. New York: Hoeber, 1952, 283-298.
 28. Kallmann, F. J. *Heredity in health and mental disorder*. New York: Norton, 1953.
 29. Kallmann, F. J., & Sander, G. Twin studies on aging and longevity. *J. Hered.* 1948, 39, 349-357.
 30. Landis, C., & Bolles, M. M. *Textbook of abnormal psychology*. New York: Macmillan, 1947.
 31. Leahy, A. M. Nature-nurture and intelligence. *Genet. Psychol. Monogr.*, 1935, 17, 235-308.
 32. Malkova, N. N., Proc. Maxim Gorki med.-biol. res. institute, 1934, No. 3. Cited in Stern, C., *Principles of human genetics*. San Francisco: Freeman, 1960, (2nd ed.).
 33. McGraw, M. B. Motivation of behavior. In L. Carmichael (Ed.), *Manual of child psychology*. New York: Wiley, 1946, 332-369.
 34. Morgan, T. H. *Scientific basis of evolution*. New York: Norton, 1932.
 35. Newman, H. H., Freeman, R. N., & Holzinger, K. J. *Twins: a study of heredity and environment*. Chicago: Univer. Chicago Press, 1937.
 36. Osborne, R. H., & DeGeorge, F. V. *Genetic basis of morphological variation*. Cambridge: Harvard Univer. Press, 1959.
 37. Parker, M. M. Experimental studies in the psychology of temperament in the adult albino rat. Abstr., doct. Diss. Ohio State Univer., 1939, No. 30.
 38. Pastore, N. The nature-nurture controversy. New York: King's Crown Press, Columbia Univer., 1949.
 39. Pastore, N. The genetics of schizophrenia: a social review. *Psychol. Bull.*, 1949, 46, 286-302.
 40. Pearson, K. On the inheritance of mental and moral character in man, and its comparison with the inheritance of physical character. *J. Anthropol. Inst.*, 1903, 33, 179-237.
 41. Pearson, K. On the inheritance of mental and moral character in man. *Biometrika*, 1904, 3, 131.

42. Penrose, L. S. Heredity. in J. McV. Hunt (Ed.), *Personality and the behavior disorders*. Vol. I. New York: Ronald, 1944, 505-525.
43. Penrose, L. S. *The biology of mental defect*. New York: Grune and Stratton, 1949.
44. Petri, A. Zeitschr. Morph. u. Anthropol., 33, 1934. Cited by Stern, C., *Principles of human genetics*. San Francisco: Freeman, 1949.
45. Rosanoff, A. J., Hardy, L. M., & Plesset, J. R. The etiology of mental deficiency with special reference to its occurrence in twins. *Psychol. Monogr.*, 1937, 48, No. 4.
46. Rosenthal, D. Some factors associated with concordance and discordance with respect to schizophrenia in monozygotic twins. *J. nerv. ment. Dis.*, 1959, 129, 1-10.
47. Scheinfeld, A. *The new you and heredity*. Philadelphia: Lippincott, 1950.
48. Shields, J., & Slater, E. Heredity and psychological abnormality. In Eysenck, H. J. (Ed.), *Handbook of abnormal psychology*. New York: Basic Books, 1961, 298-343.
49. Skodak, M., & Skeels, H. M. A final follow-up of study of one hundred adopted children. *J. genet. Psychol.*, 1949, 75, 85-125.
50. Stern, C. *Principles of human genetics*. (2nd Ed.) San Francisco: Freeman, 1960.
51. Stockard, C. R. *Physical basis of personality*. New York: Norton, 1931.
52. Stocks, P., & Karn, M. N. A biometric investigation of twins and their brothers and sisters. *Ann. Eugen.*, 1933, 5, 1-55.
53. Thompson, H. Physical growth. In L. Carmichael (Ed.), *Manual of child psychology*. New York: Wiley, 1946.
54. Tjio, H. H., & Levan, A. The chromosome number in man. *Hereditas Lund*, 1956, 42, 1-6.
55. Verschuer *Ergebn. inn. Med. u. Kinderkeikl.*, 1927, 31. Cited by Stern, C., *Principles of human genetics*. San Francisco: Freeman, 1949.
56. Weismann, A. *Essays upon heredity and kindred biological problems*. New York: Oxford, 1889.
57. Wright, S. W., & Tarjan, G. Phenylketonuria. *A. M. A. J. Dis. Child.*, 1937, 93, 405-419.

3

PRENATAL DEVELOPMENT

It is a rather curious fact that while we recognize that the new individual's life begins at conception, we reckon his age from the moment of birth. It would almost seem that we were implicitly saying that the events in a person's life prior to birth are of little importance in determining the future course of his development. This attitude is especially likely to apply to our conceptions of *psychological* development. And yet the environment in which the unborn child grows can be of tremendous importance in influencing later patterns of growth, not only physically, but psychologically as well.

The Chinese have traditionally been somewhat more realistic in their age computations.

Each of their babies is given at birth a full year's credit on the reckoning of its age. They know, of course, that the span of our prefatory existence is actually only nine months long, but fractions are a bother, and in China every man claims one more year of age than does the European born of the same day and the same year (3, 1).

In view of the magnitude of the growth processes occurring during the prenatal period, the Chinese approach to age reckoning appears somewhat more appropriate than ours.

HOW CONCEPTION OCCURS

Conception occurs when a sperm from the male pierces the cell wall of an ovum or egg from the female. The occasions on which such mating is possible are strictly limited physiologically, and are quite independent of the vagaries of human impulse. Figure 6 shows a schematic diagram of the female reproductive system. Once every 28 days (usually around the middle of the menstrual cycle) an ovum ripens in one of the two ovaries, is discharged into the corresponding fallopian tube, or oviduct, and begins its slow journey toward the uterus, propelled by small hair-

like cilia which line the tube. In most cases, it takes from three to seven days for the ovum to reach the uterus (22). If the ovum has not been fertilized in the course of this journey, it disintegrates in the uterus after a few days, "and its remains, which are less than a grain of dust, disperse unnoticed" (3).

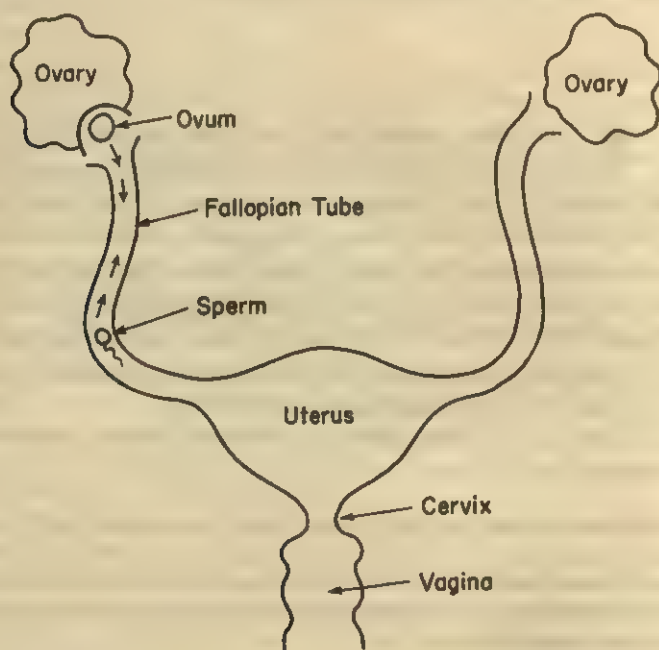


FIG. 6. Schematic diagram of female reproductive system, showing how conception occurs.

If, on the other hand, a mating has taken place, one of the many millions of tiny sperm released by the male may find its way up into the oviduct during the time the ovum is making its descent. There it may unite with the ovum and the conception of a new individual may result.

THE EARLIEST PERIOD OF EMBRYONIC DEVELOPMENT

At the moment of conception, the ovum, the largest cell in the human body, is still very small—only about $\frac{1}{175}$ inch in diameter (3). Once it has been fertilized however, it begins to grow. The first of the three stages of prenatal development, *the period of the ovum*, has begun.

At first the fertilized ovum, or *zygote*, consists of only one cell. It is

surrounded by a thin membrane and contains in its center a solid nucleus suspended in a fluid substance called the cytoplasm. The nucleus contains the chromosomes and genes inherited from the parental sperm and ovum.

After a few hours, the zygote divides into two new cells. Still later, each of these two new cells also divides. The process is repeated again and again throughout the course of development. In this fashion, the original one-celled organism becomes an increasingly complicated being, first of 2 cells, then 4, 8, 16, 32, and so on. Eventually, from the original zygote an intricately differentiated adult human being, consisting of some 26 billion cells, will emerge (12).

By the time the fertilized ovum reaches the uterus, it is about the size of a pinhead. A small cavity is formed within the mass of cells, resulting in an outer and a separated inner cluster of cells (see Fig. 7). The outer layer, called the *trophoblast*, will ultimately develop into accessory tissues which protect and nourish the embryo. The inner cluster of cells will become the embryo itself.

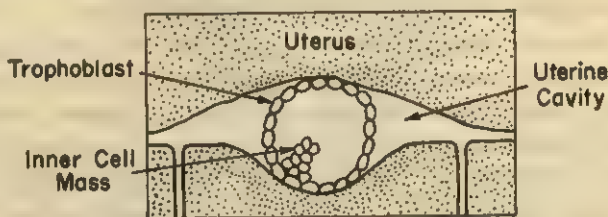


FIG. 7. Schematic representation of ovum at early state of implantation in uterine wall.

While these developments are taking place, small burrlike tendrils have begun to grow around the outside of the trophoblast. It is by means of these tendrils that in a few more days (around ten days after fertilization), the ovum will attach itself to the uterine wall.

In the meantime, however, the uterus itself has begun to undergo changes in preparation for receiving the fertilized ovum (called a *blastocyte* at this stage). At the time of implantation (attachment of the ovum to the uterine wall), the tendrils from the trophoblast burrow into the receptive mucous membrane of the uterus. Extensions of the tendrils reach into the blood spaces which have formed within the maternal tissue. At this time, the period of the ovum comes to an end, and the second phase of prenatal development, the period of the embryo begins. The new

individual has ceased to be an independent, free-floating organism and has established a dependent relationship with the mother.

THE PERIOD OF THE EMBRYO

Once the growing egg has been successfully lodged in its new home, development is rapid. Its *inner* cell mass, which will become a recognizable embryo, begins to differentiate itself into three distinct layers:

(1) The *ectoderm* (outer layer), from which will develop the epidermis or outer layer of the skin, the hair, the nails, parts of the teeth, skin glands, sensory cells—and the nervous system.

(2) The *mesoderm* (middle layer), from which will develop the dermis or inner skin layer, the muscles, skeleton, and the circulatory and excretory organs.

(3) The *endoderm* (inner layer), from which will develop the lining of the entire gastrointestinal tract, the Eustachian tubes, trachea, bronchia, lungs, liver, pancreas, salivary glands, thyroid glands, and thymus (12, 22).

While the inner cell mass is being differentiated into a recognizable embryo, the outer layers of cells are giving rise to the fetal membranes—the *chorion* and *amnion*. These two membranes, together with a third membrane derived from the uterine wall of the mother (the *decidua capsularis*), extend from the wall of the uterus and enclose the developing embryo (see Fig. 8). They form a sac which is filled with a watery fluid (*liquor amnii*) and acts as a buffer to protect the embryo from shocks experienced by the mother. It also helps to provide an even temperature for the embryo and serves to prevent adhesions between the embryo and the amniotic membrane (40).

Simultaneously, other fetal sacs are formed, the most important of which becomes the umbilical cord. It extends from the embryo, and is attached at its opposite end to the section of the uterine wall where the uterus and the chorion are joined. This area is called the *placenta*.

The umbilical cord might well be referred to as the life-line of the embryo. Through it, two arteries carry blood from the embryo to the placenta, and one vein carries blood to the infant from the placenta. However, the relationship between the child's blood stream and the mother's is not a direct one. Both the child's and the mother's blood streams open into the placenta. But the two systems are always separated by cell walls within the placenta. These cell walls consist of semipermeable membranes which function as extremely fine mesh screens, large enough to permit

the passage of gases, salts, and other substances of small molecular size, but too small to allow blood cells to get through.

Although a precise knowledge of all the substances which pass through a normal placenta is lacking, it is known that various nutrient substances from the mother's blood—chiefly sugars, fats, and some protein elements—permeate it. Waste products from the infant, primarily carbon dioxide

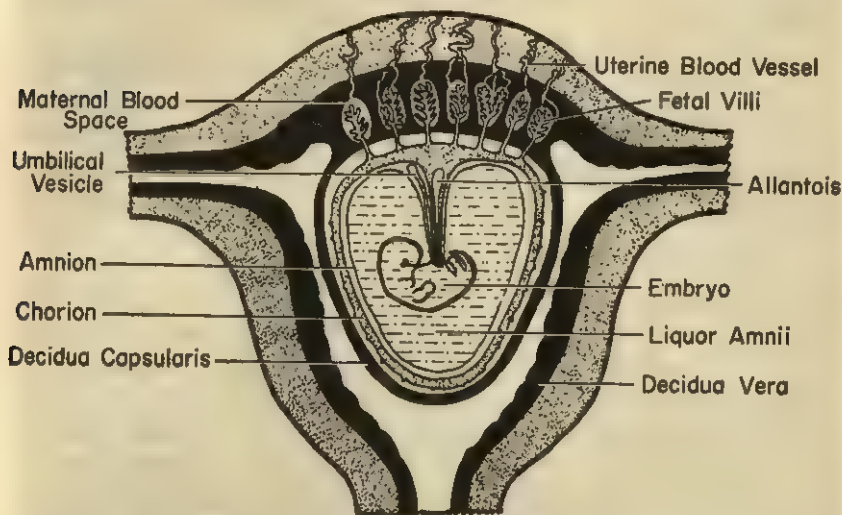


FIG. 8. Diagram representing the relationship between the uterus, the membranes, and the embryo during early pregnancy. (From L. Carmichael, "Origin and Prenatal Growth of Behavior." In C. Murchison (Ed.), *A Handbook of child psychology*. (2nd ed.) Worcester: Clark University Press, 1933, 50. By permission of the publisher.)

and other metabolites, can also pass through the placenta. In addition, some vitamins, drugs (including nicotine and alcohol), vaccines, and a few disease germs (notably those of diphtheria, typhoid, influenza, and syphilis) may also get through and affect the embryo's development (3, 8, 45).

It should be noted that there are no direct neural connections between the maternal and embryonic nervous systems.

Not a single nerve fiber crosses the placental barrier; there is no channel for the transmission of feelings or intentions, moods, memories, or ideas. The infant is in fact completely shut off from its mother save for the exchange of simple chemical nutrients and wastes through a screen so fine that it will pass nothing but the smaller molecules of matter (3, 253).

In other words, there is no physiological basis for the kinds of superstitious notions about prenatal influences which were once common. A child does not spend his life reeling and staggering because his mother saw a drunken man reeling in the street during her pregnancy, nor do children develop harelips because their mothers were frightened by rabbits while the children were in utero.

Despite the fact that there are no nerve fibers joining mother and fetus, a mother's emotional state may indirectly influence the physiological functioning of her child. When the mother is emotionally aroused, a variety of physiological reactions occur, and specific hormones such as adrenalin, as well as other chemical agents, are released into the mother's bloodstream. Some of these substances may pass through the placenta and affect the ongoing physiological processes in the unborn child (3, 8, 45).

Development of the Embryo

Much of our knowledge of prenatal development has been derived from the intensive study of embryos and fetuses which, for medical reasons, had to be surgically removed from the uterus.

During the period of the embryo, development is extremely rapid. By 18 days, the embryo has already begun to take some shape. It has established a longitudinal axis and its front, back, left, and right sides, and a head and tail are discernible. By the end of the third week a primitive heart has developed and has begun to beat (13).

At the end of the first month the embryo is about $\frac{1}{8}$ inch long. It has the beginnings of a mouth region, of a gastrointestinal tract, and of a liver. The heart is becoming well developed, and the head and brain regions are becoming more clearly differentiated. At this stage, the embryo is still a very primitive organism. It has as yet no arms or legs, no developed features, and only the most elementary of body systems.

By 8 weeks, however, the picture has changed markedly (see Fig. 9). The embryo is now about an inch long. Face, mouth, eyes, and ears have begun to take on fairly well-defined form. Arms and legs and even hands and feet with stubby fingers and toes have appeared (12). At this stage the sex organs are just beginning to form. The development of muscle and cartilage also begins, but well-defined neuromotor activity (activation of the muscles by impulses from the nerves) is still absent at this stage (12, 14). The internal organs—intestines, liver, pancreas, lungs, kidneys—take on a definite shape and assume some degree of function. The liver, for example, begins to manufacture red blood cells.

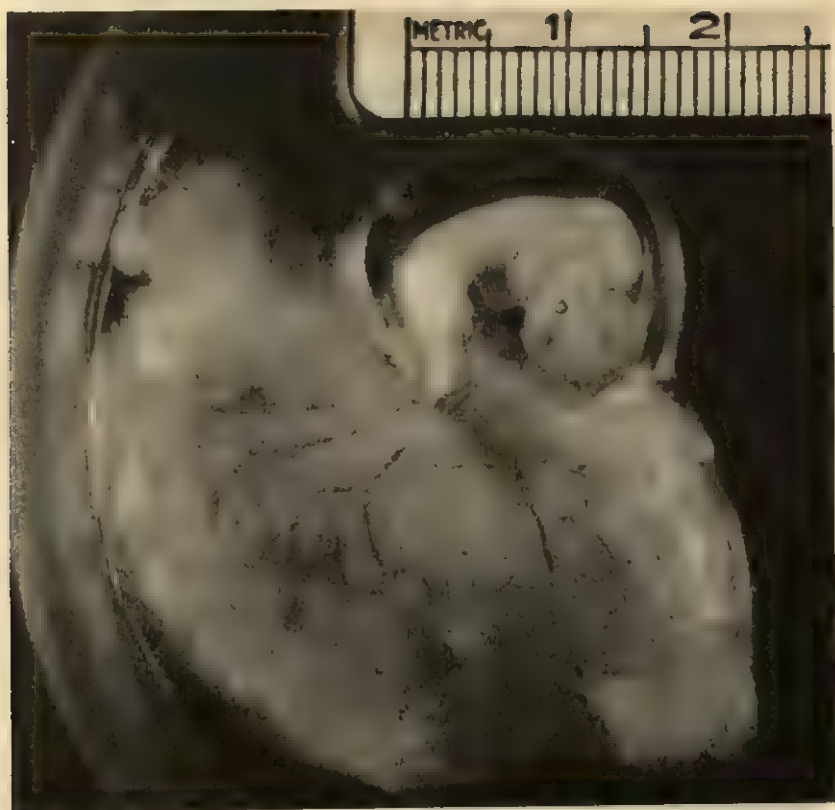


FIG. 9. Human embryo at 8 weeks. (From M. E. Davis and C. Carmon, *De Lee's Obstetrics for Nurses*. Philadelphia: Saunders, 1951. With permission of the author and publisher.)

The period of the embryo is characterized by an extremely rapid development of the nervous system. Figures 8 and 9 show that, during this period, the head is large in relation to other body areas. This suggests that the first eight weeks constitute a critical period with respect to the integrity of the nervous system. Mechanical or chemical interference with development at this time (e.g., mother falling downstairs, or an overdose of drugs to the mother) is more likely to cause permanent nervous system damage than a similar disruption at a later date. For example, if the mother should contract German measles during this period, the child is more likely to be mentally deficient than if she should have this illness during the last eight weeks of pregnancy.

THE PERIOD OF THE FETUS

The third period of prenatal development, *the period of the fetus*, extends from the end of the second month until birth. During this time, the various body systems, which have been laid down in rudimentary form earlier, become quite well developed, and begin to function. Up until about 8½ weeks, the fetus has led a relatively passive existence, floating quiescently in the amniotic fluid. At this time, however, it becomes capable of responding to tactile (touch) stimulation (40). The trunk flexes and the head extends. From this point on, motor functions become increasingly more differentiated and complex.

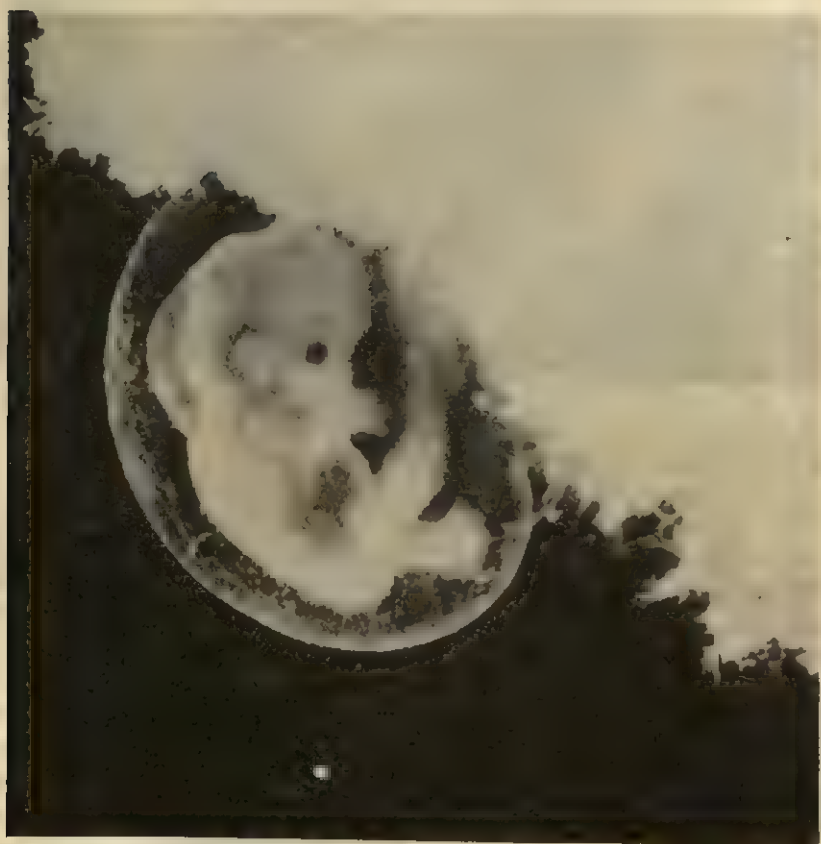


FIG. 10. Human fetus at 3 months. (From A. Gessell, *The embryology of behavior*. New York: Harper, 1945, 29. With permission of the publisher and author.)

By the end of the third month, the fetus is about 3 inches long and weighs about $\frac{1}{2}$ ounce. It has definitely begun to resemble a human being, though the head is disproportionately large (see Fig. 10). Muscles are becoming well developed, and spontaneous movements of the arms and legs may be observed. Eyelids and nails have begun to form, and the fetus' sex can now be distinguished easily. The nervous system is still very incomplete, however. During the next four weeks, motor behavior becomes more complex. Gesell has described the status of motor behavior in the fetus during these weeks:

He moves his upper lip. When a little more mature he moves his lower lip. Later he moves both lips in unison. Still later he opens and closes his mouth. He swallows with closed mouth, but at times he also swallows amniotic fluid. His tongue moves. . . . He may also rotate his head in association with the "oral reflex"; for complex patterns of feeding behavior are in the making. Peristaltic waves sweep over his lengthening digestive tube.

Arms and legs occasionally move in diagonal alternation in a manner which suggests locomotion, whether aquatic or terrestrial—small movements which may, however, displace the position of the fetus. But human arms and hands are ultimately meant for manipulation as well as locomotion, and the fetus accordingly foreshadows long in advance the patterns of a higher order. He elevates the upper arms, he extends his drooping hands. Elbows formerly fixed are mobile. He deploys his hands in the median plane: sometimes they almost touch the mouth. His movements are less stilted than they were in the previous months, when his palms assumed a stiff pat-a-cake attitude or were retracted far apart. He now rotates his forearm medially. He opens and closes his hands. He moves his thumb independently, or curls it fist-like under the conjoint digits, a token of later opposability (12, 68).

By the end of 16 weeks, the mother can feel the fetus' movements. At this point the fetus is about $4\frac{1}{2}$ inches in length. In the period from 16 to 20 weeks, the fetus increases to about 10 inches in length and 8 or 9 ounces in weight (22). It becomes more human-looking and hair appears on the head and body. The mouth becomes capable of protrusion, as well as opening and closing—a precursor of later sucking movements (12). Blinking of the eyes occurs, although the lids are still tightly fused. The hands become capable of gripping in addition to closing.

After 20 weeks (fifth month) the skin begins to assume adult form; hair and nails appear, and sweat glands are developed.

By 24 weeks of age (6 months) the eyes are completely formed, and taste buds appear on the tongue. The fetus is now capable of "true inspiration and expiration, and of a thin crying noise should he be prematurely born" (12, 71).

The fetal age of 28 weeks is an important one. It demarcates the zone between viability (the ability to live if born) and nonviability. By this

age, the child's nervous, circulatory, and other bodily systems have become sufficiently well structured to stand a chance of being able to function adequately in the extrauterine environment, although, of course, special care is required. At this point, reactions to changes in temperature approximate those of the full-term infant. Experimental studies of infants born at this age indicate that basic tastes, such as sweet, salt, sour, and bitter can be differentiated by the fetus (2). So can basic odors. Visual and auditory reactions also occur, though not as clearly as in the full-term infant. On the other hand, sensitivity to pain seems to be relatively absent in the premature infant.

The period from 28 weeks to birth at full-term (40 weeks) is marked by further development of the basic bodily structures and functions. In the outline which follows, Watson and Lowrey (57) have employed some of the available data on premature infants to illustrate the increasingly elaborate behavior which develops between 28 weeks and normal birth.

Fetus at 28-32 weeks

Movements meager, fleeting, poorly sustained
Lack of muscular tone
Mild avoidance responses to bright light and sound
In prone position turns head to side
Palmar stimulation elicits barely perceptible grasp
Breathing shallow and irregular
Sucking and swallowing present but lack endurance
No definite waking and sleeping pattern
Cry may be absent or very weak
Inconstant tonic neck reflex

Fetus at 32-36 weeks

Movement sustained and positive
Muscle tone fair under stimulation
Moro reflex (startle reaction) present
Strong but inadequate response to light and sound
In prone position turns head, elevates rump
Definite periods of being awake
Palmar stimulation causes good grasp
Good hunger cry
Fairly well-established tonic neck reflex

Fetus at 36-40 weeks

Movements active and sustained
Muscle tone good
Brief erratic following of objects with eyes
Moro reflex strong
In prone position attempts to lift head
Active resistance to head rotation

Definite periods of alertness

Cries well when hungry and disturbed

Appears pleased when caressed

Hands held as fists much of time, good grasp

Tonic neck reflex more pronounced to one side (usually right) than to the other

Good, strong sucking reflex (57, 37)

PRENATAL ENVIRONMENTAL INFLUENCES

Thus far, we have been discussing what might be called "normal" or typical patterns of prenatal development. But such patterns can only occur when the organism itself and its environment fall within what might be thought of as normal limits.

The chapter on genetic mechanisms emphasized that hereditary factors can affect the individual's development in important ways. We also noted, however, that no trait or characteristic of an individual is entirely hereditarily determined. Heredity may make important contributions to many of the individual's potentialities or limitations, but most of his characteristics are the consequents of complex interactions between genetically transmitted factors and environmental influences. The growth and development of the individual's inherent potential may be actualized, facilitated, and enhanced—or thwarted, mutilated, and limited—depending on the kind of physical, social, and psychological environment he encounters. "The important point to understand . . . is that the same genes may be influenced to express themselves differently and to have different end effects as a consequence of the different environments in which they function" (30, 151).

Ordinarily we think of the prenatal environment as constant and similar for all fetuses. Certainly, the fetus' surroundings are relatively simple in comparison with the complex world he will encounter after birth. Nevertheless, there are many variations in prenatal environment, and the pressures to which one fetus is subjected may differ greatly from those exerted on another. Recent research suggests that the mother's physical and emotional status (and consequently the prenatal environment she provides) may exert important influences on the course of fetal development and the subsequent health and adjustment of the child. Some of the more important prenatal environmental factors which have been investigated will be discussed in the following sections.

Maternal Malnutrition

The expectant mother should have an adequate diet if she is going to maintain her own general good health during her pregnancy and deliver

a healthy infant. This appears entirely reasonable when we remember that the growing fetus' food supply comes ultimately from the mother's blood stream, via the semipermeable membranes of the placenta and the umbilical cord. In one experimental investigation of the consequences of malnutrition during pregnancy, the subjects were 210 pregnant women attending a clinic at the University of Toronto (9, 10). All of them had inadequate diets during their first 4 or 5 months of pregnancy. In the later phases of pregnancy, the diets of 90 of the women were supplemented and made adequate from a nutritional standpoint. The other 120 maintained their nutritionally deficient diets throughout their pregnancies. By comparing these two groups, the investigators could systematically study the influence of good and poor maternal diets upon the course of pregnancy and the condition of the infant during the first few months of life.

The "good-diet" mothers were in better health throughout their pregnancies. Complications such as anemia, toxemia, threatened and actual miscarriages, premature births, and stillbirths were much more frequent in the "poor-diet" group than in the "good-diet" group. On the average, women in the latter group were in labor five hours less than the women with inadequate diets.

Compared with the infants born to "poor-diet" mothers, the babies of "good-diet" women had better health records during the first two weeks of postnatal life. They also had a much smaller incidence of major illnesses (pneumonia, rickets, tetany, anemia) and minor diseases (colds, bronchitis) during the entire first six months.

Another investigator (55) demonstrated that stillbirths, prematurities, and deaths in early infancy were less common among the babies of mothers with nutritionally adequate diets than among those whose mothers had less adequate diets. Moreover, insufficient protein in the mother's diet may lead to premature birth and neural defects in the infant (1).

The findings suggest that the "fetus obtains its nutritional requirements prior to the maternal organism and draws upon maternal storages. When these storages are depleted to a point of deficiency in the mother, the baby will fail to obtain the necessary elements" (55, 380).

Drugs

As we mentioned earlier, narcotics may permeate the maternal blood stream and be transmitted to the fetus, affecting its development. Although there is no evidence of permanent harm to the fetus or infant as

the result of its mother's use of narcotics, temporary dysfunctions have been noted. Neonates whose mothers have been given barbiturate drugs or other preparations during labor may show signs of oversedation and respiratory difficulties. Electroencephalograms (records of cortical electrical activity) of 20 infants whose mothers had been given doses of secenal sodium while in labor showed depressed cortical activity for two days following birth (21). During this time the infants seemed sluggish and drowsy. By the third day, however, these symptoms of mild sedation had worn off and no residuals were noted. Nevertheless, it seems reasonable to believe that a heavy dosing of the mother with drugs "may so overload the fetal blood stream as to produce asphyxiation of the fetus at birth, with permanent brain damage of such a kind as to lead to mental impairment" (30, 162).

The pregnant mother's smoking may affect the fetus because the nicotine from her cigarette may trigger off chemical reactions which will be transmitted through the placenta. Fetal heart rate is often, but not invariably, accelerated following the mother's smoking, although there is no evidence of enduring heart or circulatory system impairment (50).

Irradiation

Radium or Roentgen (X-ray) irradiation of the pelvis may be therapeutically necessary for the pregnant woman with a pelvic or ovarian tumor or cancer. Small amounts of this irradiation, such as those used in X-ray photography, are not known to damage the fetus, but large therapeutic doses may be injurious or precipitate abortions.

Over one-third of a group of 75 full-term infants whose mothers had therapeutic irradiation during pregnancy manifested mental or physical abnormalities which could not be attributed to any source other than the treatments. Twenty had severe disturbances of the central nervous system, 16 of them being microcephalic. (Microcephaly is a clinical type of feeble-mindedness, in which there is an abnormally small, pointed skull and a very small brain.) Eight others were extremely small, physically deformed, or blind (31, 32).

Maternal Diseases

There appears to be an effective barrier between the embryo and most of its mother's virus or germ organisms. Hence fetal infection from maternal disease is infrequent. In some rare cases, however, infants have been born with smallpox, measles, chickenpox, or mumps, transmitted from the mother (15).

On the other hand, infection with syphilitic spirochetes from the mother is not infrequent. One investigator (8) found spirochetes in 16 fetuses taken from a group of 67 syphilitic mothers—an incidence of 24 percent. These spirochetes may produce abortion or miscarriage. Or, if the child survives, he may be born weak, deformed, or mentally deficient. In some cases, the child may not manifest syphilitic symptoms until several years later. Since fetuses under 18 weeks of age are apparently not susceptible to the disease, transmission of the spirochetes may be prevented if treatment of a syphilitic mother begins early in her pregnancy.

Rubella (German measles) contracted by the prospective mother in the first 3 or 4 months of pregnancy may damage the fetus considerably, producing deaf-mutism, cardiac lesions, cataracts, or various forms of mental deficiency. There does not appear to be any direct relation between the severity of maternal infection and the degree of fetal involvement. Mild attacks may produce fetal malformations as grave as those suffered when the mother is ill from 7 to 14 days. Available data indicate that about 12 percent of the mothers with Rubella during the first 3 months of pregnancy have defective children (17).

Effects of Pregnancy Disturbance and Delivery

Pasamanick and his colleagues have searched hospital files for information on pregnancy and delivery in mothers of children who developed various types of mental and emotional disturbance during childhood. (33, 34, 35, 36, 37). The evidence suggests the following tentative conclusions. A greater proportion of mentally retarded than of normal children were born prematurely or had mothers with physiological disturbances during pregnancy, especially bleeding and toxemia (disturbances in blood circulation and kidney function) during the late stages of pregnancy. Length of labor or type of operative procedure during delivery did not seem to be important factors. Similarly, epileptic children were more likely than normal youngsters to have had mothers with disturbances during pregnancy.

Psychological symptoms which are generally regarded as learned, such as speech disorders and muscular tics, showed no relationship to abnormal pregnancy or prematurity.

Pregnancy difficulties and premature babies were more common among the lower social classes, especially nonwhite, lower-class mothers, than among the middle- and upper-classes. This social-class difference in pregnancy difficulty may be due, in part, to differences in adequacy of maternal nutrition. A second possibility is that unmarried, lower-class

mothers may have attempted to abort the fetus without adequate medical supervision, thus producing disturbances in the mother-fetus relation and subsequent bleeding, toxemia, or premature birth.

Rh Factors

If there are genetically determined differences between the blood types of the fetus and its mother, they may be biochemically incompatible. For example, the child's red blood corpuscles may contain a substance which makes his blood agglutinate or "clump" in response to a specially prepared serum, while his mother's blood may lack this substance. In this case, the child, like 85 percent of the white American population, is "Rh positive"; his mother is "Rh negative" (29).

The Rh positive fetus produces certain substances called antigens which enter into the mother's circulation through the placental barrier. Toxic substances (antibodies) are then manufactured in her blood and passed back into the fetus' circulatory system. They may do a great deal of damage there, destroying his red blood cells and preventing them from distributing oxygen normally. There may be tragic consequences, including miscarriage, stillbirth, or death shortly after birth from erythroblastosis (destruction of red blood corpuscles). Or, if the child survives, he may be partially paralyzed or mentally deficient, possibly as a result of brain damage from inadequate oxygen supply during a crucial developmental period. (30).

Fortunately, these disastrous consequences do not occur in every case of mother-child Rh incompatibility. Erythroblastosis occurs only in about one out of every 200 pregnancies (30). First-born children are not usually affected, since it takes time for the mother to develop the antibodies, but subsequent offspring are more likely to suffer if their Rh blood types differ from their mother's.

There are medical techniques now available which, if applied early, minimize the consequences of this incompatibility. "Every (woman) planning marriage should consult her physician to find out the Rh types both of herself and her prospective husband. There are various ways in which the evil factors of clashing Rh factors may be partially averted if doctors know about them beforehand" (30, 166).

The blood corpuscles contain other special chemicals besides Rh, known as the A, B, and O substances. These provide the names for the common blood types among humans. Incompatibility between mother and fetus for A, B, or O substances may have the same consequences as

Rh incompatibility (39, 54), although, fortunately, this occurs in a smaller percentage of cases, even when incompatible combinations are present.

Age of Mother

Advances in medical science have made pregnancy and birth much less dangerous and difficult than they ever have been previously. The total incidence of infant and maternal mortality, regardless of the age of the mother, is now very low. There is some evidence, however, that these mortality rates are higher if the mothers are below 23 or above 29 than if they are between these two ages.

Moreover, mothers under 20 and over 35 years of age tend to have a higher proportion of retarded youngsters than mothers between 20 and 35 years of age (33). These difficulties may be due to the inadequate development of the reproductive system in some younger women and to progressive decline in reproductive functioning in some older ones.

Women who deliver their first infant when they are 35 or over are also more likely than younger women to experience illnesses during pregnancy and longer and more difficult labor (24). They are also more likely to require operative delivery and Caesarian sections. The older the woman, the greater the likelihood that these problems will arise, but the absolute incidence of serious complications is small.

Mongolism, a condition of severe mental retardation associated with certain physical features (oblique, slit eyes and disordered growth of the skull bones) is found more frequently among children born to older than to younger mothers (28, 54). It has generally been assumed that the more advanced age of the mother led to an unfavorable reaction between mother and fetus, or to the production of defective ova (eggs). Recent evidence suggests that some (and perhaps all) forms of mongolism are due to a chromosomal abnormality. Examinations of the chromosomes of mongoloid children (based on microscopic study of cells taken from the children's bone marrow) indicates the presence of one extra chromosome. The mongoloid has 47 chromosomes, rather than the 46 present in normal individuals (26, 54).

Maternal Emotional States

Despite the fact that there are no direct connections between the mother's and the fetus' nervous systems, the mother's emotional state can influence fetal reactions and development. This is true because emotions such as rage, fear, and anxiety bring the mother's autonomic nervous system into action, liberating certain chemicals (acetylcholine and

epinephrene) into the blood stream. Furthermore, under these conditions the endocrine glands, particularly the adrenals, secrete different kinds and amounts of hormones. Cell metabolism is also modified. In brief, the composition of the blood changes, and new chemical substances are transmitted through the placenta, producing changes in the fetus' circulatory system (53).

Sontag (48, 49, 50), working at the Fels Research Institute in Yellow Springs, Ohio, showed that these changes may be irritating to the fetus. He noted that bodily movements of fetuses increased several hundred percent while their mothers were undergoing emotional stress. If the mother's emotional upset lasted several weeks, fetal activity continued at an exaggerated level throughout the entire period. When these upsets were brief, heightened irritability usually lasted several hours.

According to this investigator, prolonged maternal emotional stress during pregnancy may have enduring consequents for the child (49). Infants born to upset, unhappy mothers have high activity levels.

Such an infant is from the beginning a hyperactive, irritable, squirming, crying child, who cries for his feeding every two or three hours, instead of sleeping through his four-hour feeding period. Because his irritability affects control of his gastrointestinal tract, he empties his bowels at unusually frequent intervals, spits up half his feedings and generally makes a nuisance of himself. He is to all intents and purposes a neurotic infant when he is born—the result of an unsatisfactory fetal environment. In this instance, he has not had to wait until childhood for a bad home situation or other cause to make him neurotic. It has been done for him before he has even seen the light of day. In certain instances of severely disturbed maternal emotions which we have observed—for example, one in which the father became violently insane during his wife's pregnancy—the infant's bodily functions were so disturbed that a severe feeding problem resulted. The child was unable to retain food and became markedly emaciated and dehydrated. Experience with other similar cases suggests that many of the feeding problems which pediatricians experience with young infants arise from an abnormal fetal environment (49, 4).

Extreme maternal fatigue, unusual abdominal pressure, and violent and repeated sounds may produce strong fetal movement responses. If these stimuli are prolonged, they may elicit reactions similar to those that follow maternal emotional distress.

Maternal emotional tensions may also play some role in the development of colic in the neonate. Colic is a term applied to a syndrome characterized by a distension of the abdomen, apparent pain, and continuous crying at certain intervals during the day. One investigator (25) has reported that the mothers of colicky babies were more tense and anxious

during pregnancy than the mothers of noncolicky babies. The former group also felt more inadequate about their ability to care for the child. Perhaps the mother's chronic concern about her ability to handle the coming baby produced physiological reactions in both mother and baby that predisposed the child to the colic reaction. It is, of course, possible that tense mother-child relations following birth may have led to the development of colic. This study does not permit a differentiation of these alternative explanations, and the student should bear in mind that there are many cases of colic that are not clearly related to maternal tension and anxiety.

Extreme anxiety and tension during pregnancy may also predispose the mother to experience a more difficult labor and delivery. Forty-eight pregnant women were given a questionnaire designed to assess the intensity of their conscious anxiety in many areas. On the basis of official hospital records it was possible to classify each woman's subsequent delivery as "normal" (25 women) or "abnormal" (23 women). The women whose deliveries were abnormal or had complications reported a high amount of anxiety during the pregnancy period (5).

In brief, maternal anxiety and emotional unrest during pregnancy may affect the developing fetus adversely and handicap the newborn infant in his adaptation to the external environment. The long-term consequences of such disturbances are difficult to evaluate, since it is usually impossible to determine whether prenatal or very early postnatal conditions played the more important role in the infant's reactions.

Maternal Attitudes

The expectant mother's attitude toward her pregnancy may be reflected in her emotional state during this period. A woman who resents being pregnant is more likely to be emotionally upset than one who is happy about the prospect of having a child. For example, in one study (46), a large group of mothers were asked to recall their attitudes during pregnancy. Approximately one-half reported feeling delighted, while one-quarter either felt unhappy or ambivalent when they discovered that they were pregnant. In general, a greater proportion of first pregnancies than of later ones were accompanied by feelings of happiness. Moreover, the longer the time period between pregnancies, the greater the likelihood that the mother would report positive feelings.

The mother's attitude toward her pregnancy is also intimately related to her emotional maturity and personal adjustment. For example, one

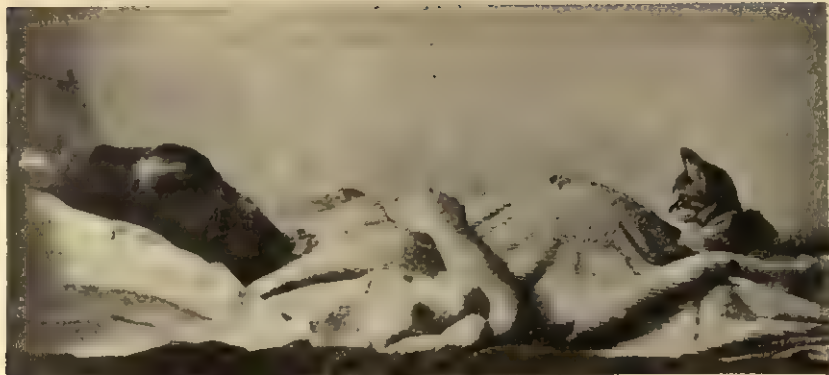


FIG. 11. (Elliott Erwitt.)

team of investigators concluded that "marital conflict, whatever its cause, was the major factor in the acceptance or rejection of pregnancies" (18). They also noted that, in some instances, failure to adjust to pregnancy was related to the mother's emotional immaturity and her continued desire to return to the dependent status she enjoyed as a child.

In order to determine the factors related to favorable and unfavorable attitudes toward pregnancy, one investigator administered a questionnaire to a group of 100 expectant women, and compared the responses of the 25 with the most positive attitudes with those of the 25 least favorably disposed to having a child (7). Nausea and prolonged periods of vomiting were reported with greater frequency in the unfavorable-attitude group, indicating that psychological factors may be important determinants of these symptoms. Generally speaking, those who felt positive toward pregnancy were well adjusted in marriage, felt financially secure, and were sexually and socially compatible with their husbands. In addition, more of these women had siblings and had experienced close family relationships during childhood. On the other hand, poor marital adjustment, emotional impoverishment during childhood, absence of close relationships with the mother during childhood, poor sex education, and having been forced to take care of younger siblings characterized the women with unfavorable attitudes toward pregnancy.

Furthermore, there appears to be a relationship between maternal reactions to pregnancy and the infant's subsequent adjustment. In one investigation (56), 100 women responded to anonymous questionnaires concerning the nature and extent of their psychosomatic reactions (e.g., nausea, vomiting, backaches) during pregnancy, their general adjustment,

and the development of their infants during the first six months. The presence of many psychosomatic complaints was used as a criterion of negative attitudes toward pregnancy, since other studies have suggested that such complaints are often related to resentment about having a child. Among women with two children, unfavorable attitudes toward pregnancy were associated with six kinds of disturbance in their infants: irregular eating, many bowel movements, gas pains, inability to sleep at night, too much crying, and unusual needs to be held.

These relationships did not hold for mothers having only one child. The authors feel that this inconsistency may be partially attributable to the fact that during their first pregnancy, women are likely to receive decidedly greater indulgence and solicitude from their husbands and others than during later pregnancies. Hence, even those who are basically rejecting of their pregnancy may feel compensated, and consequently may not become emotionally upset.

Although the results of this study are suggestive, the conclusions may not be entirely valid or definitive. For one thing, all the data came from mother's reports. It is quite possible that the mother's complaints about both her psychosomatic conditions and the baby's disturbances are related to a third, more basic factor—the mother's emotional adjustment. An emotionally maladjusted woman might complain more about her own health and her baby's behavior, even though a more objective observer might not judge them to be unusual. Furthermore, the authors' assumption that the physical disturbances reflect negative attitudes toward pregnancy may not be justified in all cases.

Nevertheless, it is interesting to note that the negatively disposed mothers had infants who manifested the kinds of problems also found to be characteristic of children whose mothers were emotionally upset during pregnancy (49). Apparently unfavorable attitudes and emotional disturbances during pregnancy may have similar consequences for the infant, possibly because the prospective mother's unfavorable attitudes are reflected in emotional distress. In the case of the rejecting woman who is expecting her first child, the compensations involved may neutralize or counteract the resentment she otherwise might feel toward her child. Thus real psychological upset may be avoided.

Further research will be needed before the consequents of the mother's emotional adjustments and attitudes for the child can be precisely evaluated. Conclusions based on studies such as those cited here must be considered tentative since they were often based on few cases and employed only gross measurements. Moreover, in many cases, the "prob-

lems" of the neonate may be attributable to his early postnatal handling rather than to prenatal environmental conditions. Finally, the student should remember that some women who are unhappy while pregnant change their attitude once the baby is born, and this changed attitude should have positive consequences for the child.

Nevertheless, all these studies agree in suggesting that various aspects of the mother's personality, attitudes, and adjustment influence the prenatal environment of the child and thus affect his subsequent well-being. Such findings, if confirmed in further studies, would point up the importance of the expectant mother's psychological status during her pregnancy for the health and emotional stability of her progeny.

THE BIRTH PROCESS AND ITS CONSEQUENTS

Birth has been viewed by a number of psychoanalysts and others as an event of tremendous psychological, as well as physical, significance. Birth involves a displacement from the calm, quiet, and peaceful environment of the uterus into the "blooming, buzzing confusion" of the outside world. Some psychoanalysts regard birth as the first danger the infant experiences; hence providing a prototype or model for all later anxieties (41). However, such highly speculative hypotheses are probably untestable and, at present, of little value in explaining the child's personality development.

Consequents of Birth Injury

A considerable body of data indicates that specific birth injuries may affect the child's physical and intellectual status permanently and profoundly. Abnormally difficult labor, instrumental delivery, obstetrical mishandling, anoxia, or hemorrhage of the blood vessels of the brain may produce central nervous system damage with consequent motor and mental defect. Cerebral palsy, "a motor defect present or appearing soon after birth, and dependent on pathological abnormalities in the brain" (60), often stems from birth injury or anoxia (lack of oxygen) during the delivery process. Many victims of cerebral palsy are mentally, as well as physically, defective as a result of neurological damage to important brain areas.

Before, during, and immediately after birth the child is vulnerable to the danger of anoxia or asphyxiation (prolonged lack of oxygen), which may produce degenerative changes in the brain cells and subsequent mental retardation. In one excellent study of the effect of anoxia and

brain injury on the functioning of neonates (16), various tests were administered during the first five days of life to both normal infants and those with birth trauma, usually as a result of oxygen deprivation during delivery. The traumatized infants were less sensitive to pain stimulation, less mature in motor integration, and inadequately responsive to visual stimulation. They were also more irritable and showed more muscular tension and rigidity. "Some of the traumatized infants might be described as hyper-reactive with increased muscular tension and irritability. These infants were sensitive to any kind of mild stimulation, but gave generalized rather than specific responses" (16).

A follow-up study of newborns who had suffered anoxia at birth revealed that the detrimental effects of anoxia may be long-lasting. At 3 years of age, these children were given a standard intelligence test and special tests of conceptual ability. The anoxic children, when compared with the normal, performed poorly on the tests of conceptualization, and had an average IQ that was 8 points lower than that of the normal infants (11).

Consequents of Premature Birth

For the child who is born prematurely, birth can be a traumatic event, since the organism is extremely fragile, and sometimes not ready for extrauterine life. Moreover, some premature births are unduly prolonged or precipitous, thus subjecting the infant to unusual stress. If such conditions affect the child's subsequent development adversely, there should be a higher incidence of mental, motor, or emotional disturbances among children born prematurely than among those born at full-term.

In one recent study (23), comparisons of the early development of 500 prematurely born infants and 492 full-term, control babies, revealed that the lighter the birth weight of the premature, the greater was the likelihood of some mental or neurological defect. At 40 weeks of age, over 8 percent of the prematures, but only 1.6 percent of the normals, showed serious neurological defects, and these defects were primarily restricted to motor functions. It appears that the motor centers of the brain are those most likely to be damaged as a result of prematurity. It should be noted, however, that only a small minority of these prematures showed serious damage.

In one study of the long-term consequences of prematurity (4), it was found that between the ages of 4 and 10 years, the prematurely born child was no longer retarded in body size (4). However, he was more likely to have some type of eye defect, and the mean IQ of the premature

was 94, as compared to a mean IQ of 107 for the full-term sibling controls.

According to other data (47), most prematures did not show prolonged deficit in gross body growth but, in comparison with full-term babies, were more apt to manifest later behavior abnormalities. Specifically, the prematurely born children displayed more of the following characteristics than full-term children: highly developed auditory and visual sensitivity; speech difficulties (babytalk, mispronunciation); poor motor coordination, awkward movements; activity extremes (tendency to be either hyperactive or sluggish); difficulties in sphincter control; shyness, dependence upon the mother; and tendency to be either extremely flighty and distractible or extremely persistent in work.

These varied psychological characteristics are not all attributable to premature birth alone. Although an unfavorable prenatal environment or birth injury may indirectly account for some of the premature child's eventual personality difficulties, it is more likely that postnatal experiences with parents are a more important cause of these difficulties. Early in his life the premature child may be overprotected and isolated. Since his parents may be afraid of harming the extremely delicate organism, they may become overstimulating in their attempts to help the child overcome the discrepancies between him and his contemporaries. Understimulation followed by pressure may lead to various kinds of maladjustment. Therefore it may be concluded that "the family environment of the premature child's early years is quite adequate to account for most of the social and emotional difficulties of the prematures" (47, 127).

Intelligence and personality tests administered to 22 children (ages 8 to 19) who had been born prematurely revealed that prematurity itself did not permanently affect intellectual development but was often associated with emotional problems (20) which prevented optimal use of intellectual abilities. These findings support the view that overprotectiveness and anxiety on the part of the parents, rather than prematurity itself, may account for the later development of many psychological difficulties.

From this summary of studies on the influence of difficult birth, birth injury, and premature birth, it is apparent that definite conclusions cannot yet be drawn. It is difficult to assess the consequences of these variables accurately, for many other obvious and subtle factors that may contribute to personality development after the child is born often cannot be controlled. This problem was illustrated most clearly in the studies of prematurely born children, where observed differences between the prematures and full-term children could be ascribed either to parental treatment and family relations or to prematurity itself.

In general, the evidence suggests that an unusually difficult birth process, premature birth, or physiological disturbances during pregnancy may result in some brain damage which can lead to epilepsy, motor or mental defects ranging from slight to severe, hyperactivity, or unusual sluggishness. However, it should be remembered that, fortunately, most children born under one or more of these anomalous circumstances are normal.

REFERENCES AND ADDITIONAL READING

1. Burke, B. S., Beal, V. A., Kirkwood, S. B., & Stuart, H. C. The influence of nutrition during pregnancy upon the conditions of the infant at birth. *J. Nutrition*, 1943, **26**, 569-583.
2. Carmichael, L. The onset and early development of behavior. In L. Carmichael (Ed.), *Manual of child psychology*. New York: Wiley, 1954.
3. Corner, G. W. *Ourselves unborn; an embryologist's essay on man*. New Haven: Yale Univer. Press, 1944.
4. Dann, M., Levine, S. Z., & New, E. V. The development of prematurely born children with birth weights or minimal postnatal concept of 1,000 grams or less. *Pediatrics*, 1958, **22**, 1037-1053.
5. Davids, A., De Vault, S., & Talmadge, M. Anxiety, pregnancy and child-birth abnormalities. *J. consult. Psychol.*, 1961, **25**, 74-77.
6. Despert, J. L. Anxiety, phobias, and fears in young children with special reference to prenatal, natal, and neonatal factors. *Nervous Child*, 1946, **5**, 8-28.
7. Despres, M. A. Favorable and unfavorable attitudes toward pregnancy in primiparae. *J. genet. Psychol.*, 1937, **51**, 241-254.
8. Dippel, A. L. The relationship of congenital syphilis to abortion and miscarriage, and the mechanisms of intrauterine protection. *Amer. J. Obst. and Gynec.*, 1944, **47**, 369-379.
9. Ebbs, J. H., Brown, A., Tisdall, F. F., Moyle, W. J., & Bell, M. The influence of improved prenatal nutrition upon the infant. *Canad. M. A. J.*, 1942, 6-8.
10. Ebbs, J. H., Tisdall, F. F., & Scott, W. A. The influence of prenatal diet on the mother and child. *The Milbank Memorial Fund Quarterly*, 1942, **20**, 35-36.
11. Ernhart, C. B., Graham, F. K., & Thurston, D. Relationship of neonatal apnea to development at three years. *Arch. Neurol.*, 1960, **2**, 504-510.
12. Gesell, A. *The embryology of behavior*. New York: Harper, 1945.
13. Gesell, A., & Amatruda, C. S. *Developmental diagnosis*. New York: Hoeber, 1941.
14. Gilbert, Margaret S. *Biography of the unborn*. Baltimore: Williams and Wilkins, 1938.
15. Goodpasture, E. W. Virus infection of the mammalian fetus. *Science*, 1942, **95**, 391-396.
16. Graham, Frances K., Matarazzo, Ruth G., & Caldwell, Bettye, M. Be-

- havioral differences between normal and traumatized newborns. *Psychol. Monogr.*, 1956, 70, No. 5, 427-428.
17. Greenberg, M., Pelliteri, O., & Barton, J. Frequency of defects in infants whose mothers had rubella during pregnancy. *J. Amer. Med. Ass.*, 1957, 165, 675-678.
 18. Hall, D. E., & Mohr, C. J. Prenatal attitudes of primiparae: a contribution to the mental hygiene of pregnancy. *Ment. Hyg.*, N. Y., 1933, 17, 226-234.
 19. Hooker, D. *The prenatal origin of behavior*. Lawrence, Kansas: Univer. of Kansas Press, 1952.
 20. Howard, P. J., & Worrell, C. H. Premature infants in later life: a study of intelligence and personality of 22 premature infants at ages 8 and 19 years. *Pediatrics*, 1952, 9, 577-584.
 21. Hughes, J. G., Ehemann, B., & Brown, U. A. Electroencephalography of the newborn. *Amer. J. Dis. Child*, 1948, 76, 626-633.
 22. Hurlock, E. B. *Child development*. New York: McGraw-Hill, 1950.
 23. Knobloch, H., Rider, R., Harper, P., & Pasamanick, B. Neuropsychiatric sequelae of prematurity: A longitudinal study. *J. Amer. Med. Ass.*, 1956, 161, 581-585.
 24. Kuder, K., & Johnson, D. G. The elderly primipara. *Amer. J. Obst. and Gynec.*, 1944, 47, 794-807.
 25. Lakin, M. Personality factors in mothers of excessively crying (colicky) infants. *Monogr. soc. res. child Develpm.*, 1957, 22, No. 64.
 26. Lejeune, J., Turpin, R., & Gautier, M. Le mongolisme, premier exemple d'aberration autosomique humaine. *Ann. genet. Hum.*, 1959, 1, 41-49.
 27. Lilienfeld, A. M., & Pasamanick, B. The association of maternal and fetal factors with the development of mental deficiency. *Amer. J. ment. Defic.*, 1956, 60, 557-569.
 28. Malzberg, B. Some statistical aspects of mongolism. *Amer. J. ment. Defic.*, 1950, 54, 226-281.
 29. McCurdy, R. N. C. *The rhesus danger: Its medical, moral and legal aspects*. London: Heinmann, 1950.
 30. Montagu, M. F. A. Constitutional and prenatal factors in infant and child health. In M. J. E. Senn (Ed.), *Symposium on the healthy personality*. New York: Josiah Macy, Jr. Foundation, 1950, 148-175.
 31. Murphy, D. P. The outcome of 625 pregnancies in women subjected to pelvic radium roentgen irradiation. *Amer. J. Obst. and Gynec.*, 1929, 18, 179-187.
 32. Murphy, D. P. *Congenital malformation*. (2nd ed.) Philadelphia: Univer. of Pennsylvania Press, 1947.
 33. Pasamanick, B., & Lilienfeld, A. M. Association of maternal and fetal factors with development of mental deficiency. 1. Abnormalities in the prenatal and paranatal periods. *J. Amer. Med. Ass.*, 1955, 159, 155-160.
 34. Pasamanick, B., & Lilienfeld, A. M. Maternal and fetal factors in the development of epilepsy. II. Relationship to some clinical features of epilepsy. *Neurology*, 1955, 5, 77-83.
 35. Pasamanick, B., Knobloch, H., & Lilienfeld, A. M. Socioeconomic status and

- some precursors of neuropsychiatric disorder. *Amer. J. Orthopsychiat.*, 1956, **26**, 594-601.
36. Pasamanick, B., & Kawi, A. A study of the association of prenatal and par-anatal factors with the development of tics in children. *J. Pediat.*, 1956, **48**, 596-601.
37. Pasamanick, B., Constantinow, F. K., & Lilienfeld, A. M. Pregnancy experience and the development of childhood speech disorders. *Amer. J. dis. Child*, 1956, **91**, 113-118.
38. Preston, M. I. Late behavioral aspects found in cases of prenatal, natal and postnatal anoxia. *J. Pediat.*, 1945, **26**, 353-356.
39. Race, R. R., & Sanger, R. *Blood groups in man*. Springfield, Ill.: C. C. Thomas, 1954.
40. Rand, W., Sweeny, M., & Vincent, E. L. *Growth and development of the growing child*. Philadelphia: Saunders, 1946.
41. Rank, O. *The trauma of birth*. New York: Harcourt Brace, 1929.
42. Rider, R. V., Tanback, M., & Knobloch, H. Associations between premature birth and socioeconomic status. *Amer. J. publ. Hlth.*, 1955, **45**, 1022-1028.
43. Rogers, M. E., Lilienfeld, A. M., & Pasamanick, B. *Prenatal and paranatal factors in the development of childhood behavior disorders*. Baltimore: Johns Hopkins Univer., 1956.
44. Ruja, H. J. The relation between neonate crying and length of labor. *J. genet. Psychol.*, 1948, **73**, 53-55.
45. Scheinfeld, A. *The new you and heredity*. Philadelphia: Lippincott, 1950.
46. Sears, R. R., Maccoby, E. E., & Levin, H. *Patterns of child rearing*. Evanston, Ill.: Row, Peterson Co., 1957.
47. Shirley, M. M. A behavior syndrome characterizing prematurely born children. *Child Developm.*, 1939, **10**, 115-128.
48. Sontag, L. W. The significance of fetal environmental differences. *Amer. J. Obst. and Gynec.*, 1941, **42**, 996-1003.
49. Sontag, L. W. War and fetal maternal relationship. *Marriage and Family Living*, 1944, **6**, 1-5.
50. Sontag, L. W., & Wallace, R. F. The effect of cigarette smoking during pregnancy upon the fetal heart rate. *Amer. J. Obst. and Gynec.*, 1935, **29**, 3-8.
51. Sontag, L. W. Maternal anxiety during pregnancy and fetal behavior. *Physical and Behavioral Growth*, 26th Ross, Ped. Res. Conf., Columbus, Ohio, 1958, 21-24.
52. Speeman, H. Some factors of animal development. *Brit. J. exp. Biol.*, 1925, **2**, 493-504.
53. Squier, R., & Dunbar, F. Emotional factors in the course of pregnancy. *Psychosom. Med.*, 1946, **8**, 161-175.
54. Stern, C. *Principles of human genetics*. (2nd ed.) San Francisco: W. H. Freeman, 1960.
55. Tompkins, W. T. The clinical significance of nutritional deficiencies in pregnancy. *Bull. New York Acad. Med.*, 1948, **24**, 376-388.
56. Wallin, R., & Riley, R. Reactions of mothers to pregnancy and adjustment

- of offspring in infancy. *Amer. J. Orthopsychiat.*, 1950, 20, 616-622.
57. Watson, E. H., & Lowrey, G. H. *Growth and development of children*. Chicago: Yearbook Publishers, 1954.
58. Wile, I. W., & Davis, R. *The relation of birth to behavior*. *Amer. J. Orthopsychiat.*, 1941, 11, 320-334.
59. Woolf, L. I., Griffiths, R., & Montcrief, A. Treatment of phenylketonuria with a diet low in phenylalanine. *Brit. Med. J.*, 1955, 1, 57-64.
60. Yannet, H. Mental deficiency. In A. G. Mitchell and W. E. Nelson (Eds.), *Textbook of pediatrics*. (5th ed.) Philadelphia: Saunders, 1951.

PART



THE FIRST TWO YEARS



4

BIOLOGICAL CHANGES IN THE FIRST YEAR

Birth brings enormous changes in the life of the developing child. With his sudden exposure to the wider world outside, the forces which can affect his development increase markedly. Before this, only hereditary factors and limited intrauterine conditions could influence him. After birth, the number of environmental stimuli impinging on the infant and affecting his status is multiplied many times.

Moreover, birth marks the passing from a completely parasitic dependence on the mother physiologically to a position of some independence. Whereas previously his mother's body took care of all the fetus' bodily needs, the infant must now satisfy some of these needs at least partially by himself.

The interruption and cessation of circulatory relations with the maternal organism mean that no more nutrient materials ready for assimilation are available to the child. Henceforth, it must take food, digest it, excrete, egest, and maintain a relatively uniform body temperature despite variations in its thermal environment (73, 216).

It is a major theme of this book that learning, which in large measure begins after birth, is of central importance in personality development. Principles of human learning will be elaborated in the next chapter. As we shall see, the starting points of learning are the infant's biological needs, his ability to notice environmental stimuli, and his response capacities. Certain responses seem to depend almost exclusively on physical maturation (i.e., neuromuscular development) and physiological changes in the organism, since they emerge regardless of whether or not the infant has opportunities for practice.

However, most behavior with which we will be concerned in this book is learned, i.e., develops as a consequence of specific experiences. But even these responses cannot be learned until the essential neuromuscular mechanisms are "ready."

The maturation of neural tissues sets certain limits for children's behavior. For example, no amount of parental effort is sufficient to enable the 3-month-old infant to write with a pencil. Neural development is too limited at this age for such complex behavior (91, 84).

In this chapter, we shall examine the neonate's (newborn's) basic equipment for learning—his innate needs, his capacities for receiving information, his response capabilities, and the ways in which these develop during the first year.

CONGENITAL DIFFERENCES AMONG NEONATES

Although mothers have always recognized that each of their children was "different from the first day," psychologists have only recently begun to look systematically at these initial, unlearned differences and their potential significance. The term *congenital* refers to characteristics that are present at birth and which, in some cases, may be hereditary. Investigators have studied such characteristics as sensory thresholds, motor activity, and physiological reactions, and it appears that there are marked differences among newborns with respect to these attributes.

Activity

There are wide individual differences in the spontaneous motor activity of infants. Some children show frequent and vigorous thrashing of arms and legs, whereas others lie still and quiet. Some infants sleep restlessly; others show minimal activity during sleep (31, 45, 95). Furthermore, there is some evidence to suggest that infant boys show higher and more vigorous activity levels than girls (61, 90).

It is not unreasonable to assume that some aspects of the child's development during the early years might be influenced by extremely high or low levels of activity. For example, an extremely active and motorically energetic infant might be more apt to become physically aggressive in the preschool years. Some writers have speculated that unusually high degrees of infant activity are a sign of inability to control and modify the effect of strong needs and states of internal tension (28). Thus, highly active children may have difficulty inhibiting direct, aggressive behavior when they encounter the complex frustrations of the preschool and school-age environment. These are only possibilities and have not yet been verified by empirical study.

The child's activity level may also affect his development indirectly by influencing his general interaction with the environment, and the way he is handled by others.

The development of behavior . . . depends upon the responsiveness of the growing organism. An active, irritable infant participates in a wider environment than does a quiet, phlegmatic one, and he invites different reactions from those who share the environment with him. The baby who turns, reaches, and kicks restlessly in his crib; who cries, smiles, or coos a great deal; or who nurses actively and long, inevitably exposes himself to situations which differ from those which the placid, unreactive child encounters. What these differences in reactivity may mean for the infant's behavior organization is also importantly determined, of course, by the needs and attitudes of his parents and of the others who respond to him. An exuberant, accepting family may welcome noisy activity in its newest member which quieter, more restrictive parents would consider irritating, frightening, or bad (15, 22).

A mother who is easily irritated by a noisy, active infant may be more punishing toward an active child than toward a placid one. An energetic, athletic father may be cross and irritable with a placid infant but accepting with a more active, responsive one. Thus, the child's level of activity may influence the reactions of his parents toward him and, thereby, affect his subsequent development.

In one of the first attempts to study the relation between the behaviors of infancy and later childhood, 31 infants were observed during the first 8 months of life and again from 3 to 6 years of age (28). One investigator studied descriptions of the infant's behavior during the first year and predicted what each child might be like during the preschool years. The accuracy of these predictions was assessed through study of the older child's behavior in a group, his behavior in a play session with a psychiatrist, and through interviews with the parents.

Children who had been awkward in their motor movements and had not displayed vigorous motor activity during infancy were retarded, as preschoolers, in level of motor development and motor coordination (relative to their level of development in other areas) during the preschool years. This specific relationship had been predicted, and suggests that some aspects of infant activity are not transient, but are precursors of future behavior (28).

Sensory Thresholds

At birth, visual, auditory, tactile, olfactory, pain, and gustatory sense organs are all capable of responding to appropriate stimulation. However, infants differ with respect to the amount of stimulation that is required to elicit a response in these sensory modalities. Some infants will turn or move their limbs in response to minimal visual or auditory

stimulation, while others require more intense stimulation before they respond.

Moreover, some infants rapidly adapt to the new stimulus (i.e., gradually cease responding), while others continue to respond after many presentations of the same stimulus (12). In one study, 50 babies between 1 and 5 days of age were presented repeatedly with a tone of constant intensity. An observer recorded whether the children, individually, showed a startle pattern (i.e., flexing of the legs and arms simultaneously) to the tone while, at the same time, each child's heart rate was recorded. There were marked differences among the babies in their reaction to the repeated tones. Some showed a startle response to almost all of the tones; others rarely responded. Moreover, of those who responded to the initial presentations, some continued to respond even after 30 presentations. Other babies quickly adapted (or habituated) to the tone and stopped showing a startle after several presentations (12). These results suggest that infants differ markedly in their responsivity to external stimulation.

There is some suggestive, though not conclusive, evidence that newborn females have lower thresholds for pain than males. That is, neonatal girls will exhibit a flexing of the toe to lower intensities of electrical stimulation upon the toe than are required to elicit this reaction in boys (63).

Moreover, infants who have low thresholds to tactile stimulation (i.e., show a motor response when their skin is lightly stroked) are less likely to exert muscular effort than infants who have high thresholds to tactile stimulation (i.e., do not show a motor response when their skin is lightly stroked) (7). Newborn boys were placed on their stomachs and observers watched to see whether any child attempted to push his head and chest up from the crib. The boys who were most likely to show this "push-up" reaction displayed minimal motor activity when their cheeks were lightly stroked during sleep (7).

These data, together with the sex differences in pain threshold, tentatively suggest that differential sensitivity to pain and touch are congenital characteristics. Moreover, an extreme degree of sensitivity to tactile stimulation may be associated with a tendency to exhibit motor lethargy (i.e., not show the "push-up" reaction).

It should be emphasized that these findings are still inconclusive, and more research is needed to corroborate them. Moreover, even if newborns differ markedly in sensitivity to sound, touch, or pain, it is still possible that these differences are transient and have little or no relation to future behavior.

Physiological Reactivity

When a neonate is under tension or stress, his bodily reactions may reflect his lack of physiological or psychological well-being. There are at least four physiological systems that may react to increases in tension: the gastrointestinal tract, the skin, the respiratory (breathing) apparatus, and the cardiovascular system (heart and blood vessels). Newborns differ in the differential responsivity of these systems under stress (42). That is, some infants show large increases in heart rate or large changes in skin temperature when under stress (e.g., hungry), whereas others show less marked physiological changes in similar situations. Some babies characteristically vomit when under tension; others break out with a rash; and still others show marked flushing of the face or skin due to increase in blood pressure and dilation (opening) of the small blood vessels near the skin.

In summary, differences among infants in activity, sensitivity to stimulation, and physiological reactions are present during the first week of life. Until additional research has been done, it cannot be known whether an infant's characteristic bodily reactions will be stable over long periods of time. They may be only transient phenomena with little importance for future development. However, if they prove to be constant over the first year, it seems likely that they will influence the child's subsequent development. For example, if early differences in heart rate, stomach reactivity, or skin sensitivity do, in fact, reflect stable constitutional tendencies, then the development of specific psychosomatic symptoms in later life (e.g., ulcers, asthma, allergies) may be, at least in part, related to the ways in which the infant reacts to stress. Whether these infant reaction patterns are hereditary in origin or a result of environmental processes during intrauterine development is a fascinating but still largely unsolved mystery.

BODY GROWTH

In view of the numerous variations among infants in size at birth and in rate of growth, averages or norms can give only a general picture of development. On the average, full-term male babies, who are slightly larger in all body dimensions than females, are about 20 inches tall and weigh $7\frac{1}{2}$ pounds at birth. It should be noted, however, that the range of "normal" birth heights and weights is large. For example, neonates from poverty-stricken environments, although similarly proportioned, tend to be smaller than those from more favorable environments (5). This is probably due to nutritional differences.

The first year of the child's life brings remarkably rapid and extensive growth changes. Body length increases over one-third, and weight almost triples, so that by the age of 1, the average baby is about 28 or 29 inches tall and weighs about 20 pounds.

In addition, there are vast modifications in body proportions and in skeletal, neural, and muscular structure. Detailed technical discussions of these developments are beyond the scope of this book, but a condensed description of the major changes follows (93).

Body Proportions

Since "the body does not grow as a whole and in all directions at once" (92, 299), the infant's over-all body proportions change rapidly, particularly during the second half of the first year. The differential growth rates of the legs and face illustrate the way in which body proportions change. At birth, the infant's legs are about one-fifth as long as they will be when he is an adult, but from about 8 weeks of age they grow at an accelerated rate. In contrast to this, the head and face grow more slowly than the body as a whole, although skull size and shape become signifi-

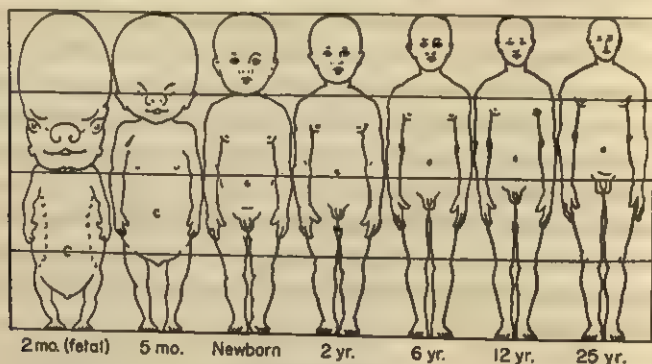


FIG. 12. Changes in form and proportion of the human body during fetal and postnatal life. (From C. M. Jackson, *Some aspects of form and growth*. In W. J. Robbins, S. Brody, A. F. Hogan, C. M. Jackson, and C. W. Green, *Growth*. New Haven: Yale University Press, 1928, 118. With permission of the publisher.)

cantly modified. The total length of the head and face of the 3-month-old fetal infant is about one-third of his total body length; at birth this height is less than one-fourth; in adulthood, about one-tenth (69) (see Fig. 12).

Skeletal Development

All of the bones of the body originate from soft cartilage tissue, which, over a period of time, becomes ossified or hardened into bone material by the deposition of minerals. Ossification begins during the prenatal period and continues, for some bones, until late adolescence. Since most infants' bones are not ossified to any great extent, they are softer, more pliable, more reactive to muscular pull and pressure, and more susceptible to deformity than those of older children and adults. Fortunately, they are also less subject to breakage.

The timing and rate of ossification differs with the various bones of the body and among individuals. Some of the bones of the hand and wrist ossify very early in life, and by the end of the first year most children have developed three of their total (i.e., adult) complement of 28 hand and wrist bones. Other skeletal parts ossify later. The skull of the newborn infant has six soft spots (fontanelles) which ossify gradually and do not disappear until the child is about 2 years of age. Other bones develop still later (92).

As with other aspects of development, there are marked individual and group differences in rates of ossification and skeletal growth. Sex differences in skeletal development favoring girls are present at birth and increase with age. Negro infants are generally advanced beyond white infants (93). Moreover, broad-framed children tend to have a faster rate of ossification than narrow-framed children. Hereditary factors markedly affect the rate and timing of skeletal development, although illness, allergies, and malnutrition may produce disturbances of ossification.

Teeth

Tiny beginnings of the deciduous or "baby" teeth are present in the fetus from the age of 10 to 13 weeks, but there is a great deal of individual variability in the time of eruption of the first tooth. A very small proportion of infants are born with one or more teeth, others do not have any until after they are 1 year old. The first tooth, generally a lower front tooth, erupts at an average age of 7 months. By the time the average child is a year old he has six teeth, but the range is from 0 to 12 months (40). The timing of tooth eruption is unrelated to many aspects of physical development (e.g., height, weight, muscle mass) during infancy and childhood. As in bone growth, the girls are slightly advanced over the boys in tooth formation and time of eruption. Genetic factors also influence the sequence and timing of tooth eruption, and

Oriental and Negro children are generally more advanced than Caucasians (87, 35).

Muscles

Although the neonate has all the muscle fibers he will ever have, they are small in comparison to his size. However, there is continuous growth in muscle length, breadth, and thickness until, in adulthood, the weight of the muscles is about forty times what it was at birth. The striped or skeletal (voluntary) muscles of the body are not yet completely under the infant's control during the first year. They fatigue rapidly, and recover easily in the early stages of the development of voluntary responses such as sitting and walking (92).

As with teeth and bones, different muscle groups grow at different rates, and there is a general tendency for the muscles near the head and neck to develop earlier than those of the lower limbs (cephalocaudal development). Finally, infant boys have a greater proportion of muscle tissue than infant girls, and this sex difference holds for males and females at all ages (33, 34).

BASIC NEEDS

The infant is born with a number of basic physiological drives or needs which must be satisfied if he is to survive. Most of these are usually taken care of in a self-regulatory manner, without any active participation by the infant. However, two drives, hunger and thirst, are not gratified (reduced) automatically. For this reason, as we shall see later, they are crucially involved in the infant's earliest learning.

Need for Oxygen

Within the first few days of postnatal life, respiration is stabilized on an adultlike level (70). Reflex mechanisms (regulated by the saturation of oxygen and carbon dioxide in the blood) operate to assure the neonate an oxygen supply adequate for his needs. Consequently, the drive for oxygen rarely becomes high or intense.

Irregular and shallow breathing in the neonate is usually normal, not a sign of inadequate functioning of the respiratory mechanisms. However, noisy breathing that begins suddenly may be a symptom of croup, asthma, or other infection and requires immediate medical attention (86).

Temperature Regulation

Before birth, the child's temperature is likely to remain fairly stable, since he is protected by the surrounding amniotic fluid. Once outside the

uterus, however, his temperature is much more likely to vary in response to changes in the environment. The newborn infant may be exposed to drafts and to changes in the weather. He may kick off his blankets and become cold; or more likely, according to pediatricians, he may be bundled up too snugly by his anxious parents and become too hot. He is much more subject to fever-producing infections than he was before birth.

Within limits, the child's need to maintain a relatively constant temperature is fulfilled by automatic physiological mechanisms. When these limits are exceeded, however, as in the above examples, the temperature regulation drive becomes intensified, and the child requires external assistance in bringing his temperature back to normal. In short, he needs parents to open or shut windows, add or remove blankets, and, if indicated, to administer proper drugs.

Need for Sleep

At present, there is no completely satisfactory physiological theory to account for the need for rest. Sleep seems to be another device by which the body regulates itself, maintains equilibrium in its chemical constitution and physiological processes, and thus preserves the organism's energy for later activity.

The proportion of time spent in sleep decreases as the child grows older. Neonates on the average spend 80 percent of their time asleep and 20 percent awake, while 1-year-olds on the average are awake as much of the time as they are asleep (14).

The rhythms and depth of sleep also change rapidly during the first year. For the first 3 or 4 weeks, the average infant takes seven or eight short naps a day, but the number is reduced to between two and four longer periods of sleep by 6 weeks of age. By 28 weeks, most children will sleep through the night, and from then until they are about a year old, will require only two or three daytime naps (38). Night sleep also becomes less broken as the child matures—to the considerable relief of weary mothers.

There are great individual differences in sleep needs, and any particular child's requirements may vary from time to time. Many factors influence the quality and quantity of sleep. During the earliest months, intestinal upsets, and later on, wetness, bodily discomfort, noise, or emotional factors (violence, excitement, etc.) may interfere with sound rest. The infant's need for sleep or rest seldom becomes intense, since he will ordinarily sleep as much as is necessary and wake when he is rested. Later on, he will have to learn the culturally approved patterns of sleep

and wakefulness, but this is not an important problem during the first year.

Need for Elimination

When the neonate's bowel is full, the anal sphincters open reflexively and the contents are expelled. In the same way, when the bladder is swollen, the urethral sphincter is automatically released. These processes are entirely involuntary in early infancy, since the neuromuscular equipment necessary for voluntary control has not yet matured.

There are major alterations in patterns of elimination during the first year. While there are wide individual differences, bowel movements are generally frequent and sporadic during the first few weeks, but by the time the infant is 4 weeks old, the number generally falls to three or four evacuations daily, ordinarily associated with waking. By 8 weeks of age, the average infant usually has only two bowel movements daily, one upon waking and one close to, or during, a feeding. By 16 weeks, a definite interval between feeding and evacuation has usually been established (38).

During the first few weeks of postnatal existence, the average infant urinates frequently, but gradually the number of micturitions decreases and their volume increases. By 28 weeks of age, intervals of dryness may be as long as one or two hours. At the end of the first year, the baby may still be dry after a long nap and will likely begin to be intolerant of wet diapers.

Learning to withhold elimination until the proper—that is, socially approved—place and time requires the inhibition or suppression of responses which initially occur automatically. In toilet training, voluntary control must be substituted for reflex actions. This presents a complex and difficult learning problem which requires a great deal of skill and patience in handling, as we shall see later.

Hunger and Thirst

These two drives are confounded, i.e., are not easily differentiated, in young infants and hence will be discussed together. From a psychological and social point of view, they are the most important of the neonate's basic drives, for their satisfaction depends on someone else's help, rather than on automatic, reflex activities. If the infant's hunger and thirst are not reduced soon, tensions mount, become severe, and provoke a great deal of bodily activity. For this reason, these drives play an important role in the infant's earliest learning. Here we shall review

briefly the changes in physiological hunger needs and feeding patterns during the first year. Discussion of the broader social learning implications of the feeding situation, the infant's first interpersonal relationship, is reserved for Chapter 6.

Data on American newborn infants on self-demand schedules (feeding whenever the baby is hungry) indicate that, on the average, they take seven or eight feedings per day. By 4 weeks of age, the number has been reduced to five or six. At this time, the average infant's food intake is between 18 and 25 ounces, but this rises to about 35 ounces when he is 6 to 8 weeks old. Within the next few weeks, the number of feedings is further reduced, although total food intake does not change significantly (38).

In our culture, solid foods are often introduced into the infant's menu when he is about 20 weeks of age, and by 40 weeks, cereals and vegetables may form a regular part of his diet. By the time the American child is a year old, the three-meal regime has probably become stabilized and he may manifest marked food preferences. The time and manner of weaning the infant to solid foods varies from culture to culture.

SENSORY DEVELOPMENT

The infant cannot learn unless he receives information from his environment. He does this through his senses—vision, audition, taste, smell, and touch. There have been numerous attempts to investigate sensory functioning at birth, but there are considerable difficulties in such research. Consequently, our knowledge of the neonate's sensory capacities is still limited. In this section, we will review briefly some of the fairly well-established facts and best guesses regarding neonatal and first-year sensory development.

Vision

Although the essential neural mechanisms began to appear in the third week of prenatal life, the neuromuscular apparatus involved in vision is still not perfected when the infant is born. In order to assess the infant's visual sensitivity, we must observe his responses to visual stimuli.

1. The *pupillary reflex* (contraction of the pupil in response to light), observed even in premature infants, reveals that the neonate is sensitive to differences in the *intensity* of visual stimuli. Although the response is somewhat sluggish at birth, it becomes perfected during the first few

days of postnatal life (72, 73). At first, it can be elicited only by strong stimuli, but with increasing age, less intensity is required.

2. *Visual pursuit movements* (following a stimulus with the eyes) in response to moving colored spots projected on an overhead screen demonstrate that infants as young as 15 days can discriminate colors. Moving visual stimuli such as lights also evoke pursuit responses (17).

3. According to the best available data (62), *coordination and convergence* of the two eyes, both essential for fixation and depth perception, are absent at birth, but appear in rudimentary form a few hours afterwards.

Real convergence or binocular fixation first occurs at about seven or eight weeks. It is initially accomplished by a series of jerking movements which are gradually eliminated, and replaced by smooth, continuous convergence.

4. Since the ciliary muscles of the neonate are not mature enough to permit perfect accommodation (adjustment of the thickness of the lens of the eye to bring the light rays into proper focus on the retina) the



FIG. 13. From Fantz, R. L. (with permission of *Scientific American*, 1961, 204, 66.).

neonate probably does not perceive clear-cut images in the way that a 1-year-old does.

However, the structure and functioning of the eyes improve and become perfected rapidly after birth.

By 1 month the infant is capable of seeing complex forms and can perceive the difference between a square gray patch and a square composed of $\frac{1}{8}$ -inch stripes (29, 30). In a series of ingenious experiments with young infants, Fantz has investigated the intriguing problem: "What do infants see?" In these studies, the infant lies in a crib in a chamber, and the stimuli are hung from the ceiling. An observer watches the infant's eyes through a peephole in the ceiling and records how long the infant gazes at an object. (See Fig. 13.)

Thus, in order to find out if an infant can tell the difference between a checkerboard and a black square, both stimuli would be placed on the ceiling above the infant and the observer would note how long the infant watched each stimulus. If the infant gazed significantly longer at the checkerboard (which most infants do), the experimenter would conclude that the infant preferred the checkerboard and that he could perceive the differences between these stimuli. Using this type of procedure, Fantz has found that during 1 to 15 weeks of age, most infants prefer to gaze at complex patterns (e.g., a checkerboard, bull's-eye) rather than simple stimuli (e.g., a circle, a square, or a triangle). Although a bull's-eye and a checkerboard are both preferred to a cross or square, most infants shift from a preference for a striped pattern over a bull's-eye during the first 8 weeks of life to a preference for the bull's-eye over the striped stimulus after 8 weeks of age.

In a second experiment, three flat objects with pink backgrounds were presented to the infant. (See Fig. 14.) One was a stylized face, the second contained the features of a face rearranged in a scrambled pattern. The third stimulus contained a black patch. These three stimuli, paired in all possible combinations, were shown to 49 infants from 4 days to 6 months of age. The results were similar at all age levels: the infants looked longest at the real face, somewhat less at the scrambled face, and typically ignored the black patch. Thus, there appears to be an unlearned preference for stimuli that are *patterned*, *complex*, or *varied*, in contrast to simple and relatively homogeneous stimuli. One final experiment verifies this conclusion.

Infants were presented, one at a time, with a face, a bull's-eye, and a patch of printed matter (all patterned stimuli) and a red, yellow, or white circle. The face attracted the most lengthy glances, the printed

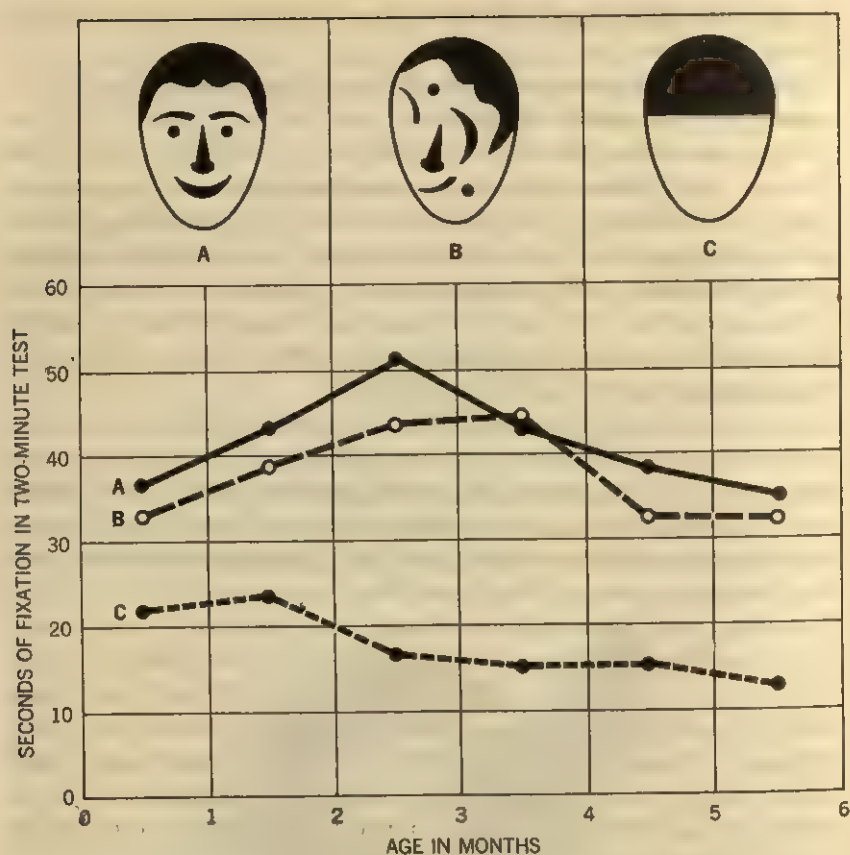


FIG. 14. From Fantz, R. L. (with permission of *Scientific American*, 1961, 204, 72).

patch and bull's-eye were next, and the three colored circles were least "interesting" to the infant.

These results agree with those of others (10), and clearly indicate that the young infant is capable of seeing complex patterns and seems to have an innate preference for such patterns over simple, homogeneous stimuli.

This preference for complex patterns has been used to ascertain the infant's visual acuity. Infants were presented with a series of patterns composed of black and white stripes, each pattern paired with a gray square of equal brightness. The width of the stripes was decreased gradually from one pattern to the next. The width of the narrowest

stripes that the infant preferred decreased steadily with age during the first 6 months. It is noteworthy that 6-month-old babies could see stripes $\frac{1}{64}$ -inch wide at a distance of 10 inches from the eye.

These findings suggest that the visual apparatus matures very rapidly during the first half-year and that the young infant is capable of seeing more than we have heretofore believed (29).

Reactions to the Perception of Depth

A second aspect of infant visual perception involves what is perhaps an unlearned avoidance of stimuli that suggest a sudden increase in depth (41).

In one study, infants were placed on a center runway that had a sheet of strong glass extending outward on either side. On one side a textured pattern (e.g., a checkerboard) was placed directly under the glass. On the other side the same textured pattern was placed far below the glass, thus giving the illusion of depth (i.e., an adult would perceive depth in this situation). These investigators called this situation the "visual cliff," for the difference between the two sides appeared as a cliff. (See Fig. 15.)

Both 6-month-old infants as well as terrestrial animals avoided the side which appeared to have the "drop-off," or cliff. Even if the infant's mother stood at the deep side of the apparatus and entreated her child to cross over to her, most infants would not approach, even though the heavy glass made the crossing safe (41).

It is not possible to conclude that the infant's perception of depth and avoidance of the "deep" side are unlearned, since these infants were about 6 months old when they were tested. Thus, they had some opportunity to learn that certain stimulus patterns indicate distance from the eye. However, work with animals indicates that some species (i.e., chicken, goat) are capable of depth perception during the first day of life.

In brief, the experiments described above suggest that some aspects of visual perception are unlearned; others develop early during the first year.

Hearing

Although the auditory mechanism is sufficiently well developed to be functional at birth, neonates may have relatively poor hearing during the early postnatal days—possibly as a consequence of mucus in the middle ear or an obstruction of the external auditory canal. In general, they respond strongly to variations in the intensity (loudness) and duration of sounds, but not to differences in pitch. Thus loud stimuli provoke more

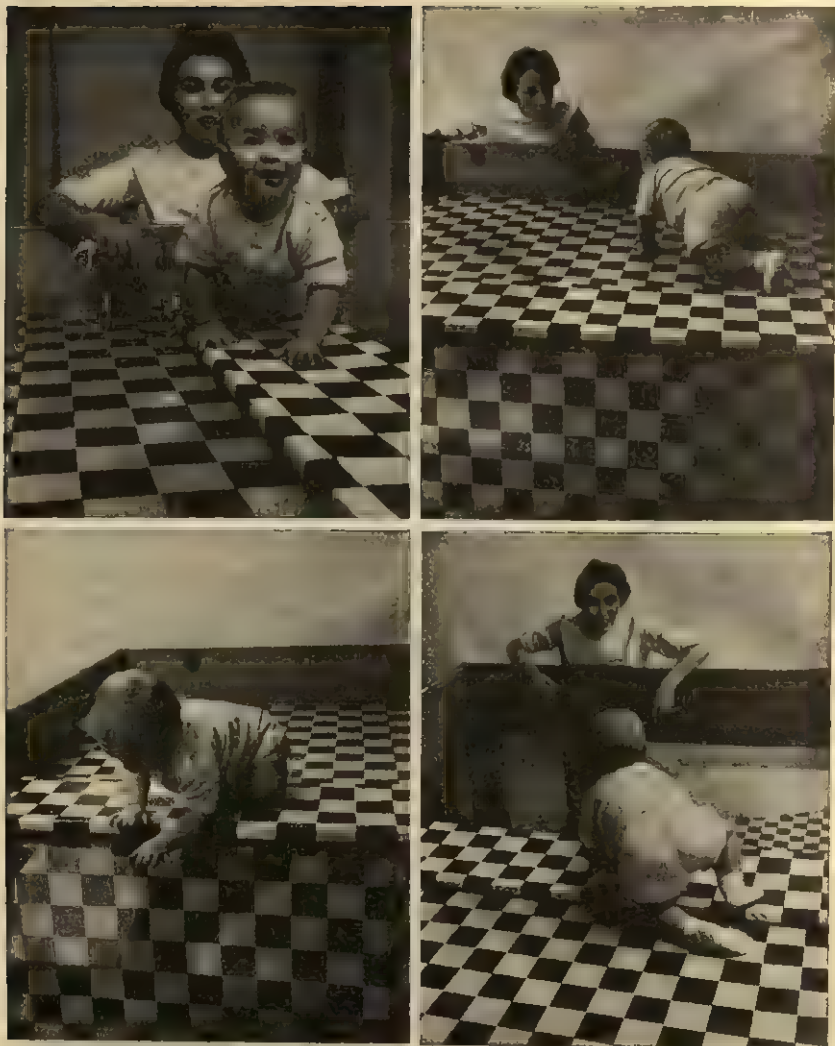


FIG. 15. From Gibson and Walk (with permission of Scientific American, 1960, 202, 65).

bodily movements, more eyelid closing, and changes in respiratory rates. Moreover, sounds lasting 15 seconds elicit more bodily movement, and faster respiratory rates than those of 1-second duration (88). On the other hand, stimuli of longer duration—5 minutes, for example—may inhibit activity. Apparently, “the auditory stimulus first releases certain overt responses and thereafter, if the stimulus persists, overt activity

subsides and there is less movement than would occur in a period of no experimental stimulation" (73, 237).

It has generally been assumed that neonates cannot discriminate between tones of different frequency. However, a recent study of 50 neonates, 1 to 5 days of age, suggests that the infant does respond differentially to tones of different frequencies (i.e., different pitch). A tone of a given pitch was sounded repeatedly until the infant ceased to show any motor response to it. Then a pure tone of a *different pitch* was sounded (of equal loudness). Many babies now showed increased movement and an increased heart rate, indicating that the new tone was perceived as different from the original. One particular baby was able to discriminate between tones of 200 and 250 cycles per second, which is approximately equivalent to one step in a musical scale (12).

Olfaction

Some investigators report differential responses to markedly pleasant and unpleasant odors (i.e., sucking in response to pleasant odors such as anise oil; and facial grimaces and turning away of the head to unpleasant ones such as ammonia). However, these differences are slight and highly variable. The neonate seems to show little or no discrimination of weak or less distinctive odors. However, the presence of odors may provoke more activity than clear air, and greater saturations of odors may stimulate greater activity (25, 74).

Gustation

Neonates do not react differentially to solutions of salt, sugar, citric acid, quinine, and distilled water (as a control) applied to their tongues, thus demonstrating that they have little taste sensitivity. Apparently this sensitivity develops rapidly, however, for within the first two weeks they begin to make pronounced positive (sucking) responses to sugar and negative (grimacing) responses to quinine and citric acid (74).

One experimenter observed that newborn infants would suck when given milk, glucose, acid milk, and sterile water, but would inhibit this response when given salt solutions. Moreover, he noted that the "moderately full baby is a better discriminator than the very hungry infant" (57).

Thermal Sensitivity

The neonate's activity level is elevated when the atmosphere is cold and reduced when it is warm. Experimental studies indicate that infants

respond to temperature changes of 5 or 6 degrees in objects contacting their legs (cylinders which can be heated or chilled from a neutral point of 33°C) (20). Cold stimuli (average temperature, 11 or 12°C) applied to the legs elicited extension and flexion, while head movements, acceleration in breathing, and irregular pulse followed cold stimulation of the forehead (74).

Early thermal sensitivity is also reflected in the finding that most infants squirm and suck irregularly if their milk is warmer than 50°C or colder than 23°C (57). There are, of course, large individual differences in sensitivity to warmth and cold.

Static-Kinaesthetic Sensitivity

Neonates are highly sensitive to changes in the spatial position of the body. If the baby falls from a sitting position, is held upside down, or jarred, he will make generalized postural adjustments. Body rotation or prone placement on a table may stimulate nystagmus (oscillation of the eyes) or head movements. Newborn infants make alternate "stepping" movements when they are held upright with their feet resting upon a flat surface. These important responses, which subsequently become involved in maintaining upright posture and walking, reveal that the infant reacts to stimulation from sense organs located in his muscles and semicircular canals of the ear (the organs involved in maintaining balance).

Pain

The phenomenon of pain sensitivity is somewhat different from that of other sense modalities. First, unlike vision, hearing, or olfaction, there do not appear to be any localized areas in the brain that receive and integrate pain-producing stimulation. Second, the experience that adults call "pain" is highly dependent upon learning. Elaboration of this point is reserved for a later section (cf. pp. 143).

Although there is little systematic information on pain sensitivity in infants, existing evidence suggests that sensitivity to pain is present to some degree at birth, and becomes sharper during the first few days of postnatal life. For example, the number of pain stimuli (pin pricks) necessary to instigate withdrawal of the stimulated area (the original response to pain) decreases between birth and 8 days (80, 81).

As suggested earlier, there may be constitutional differences among infants in pain sensitivity (63), females being more sensitive than males. As we shall see later, pain plays an important role in the child's acqui-

sition of fears and anxiety. Thus, individual variations in pain sensitivity, detectable early in life, may partially account for the individual differences among older children in susceptibility to fear.

RESPONSE CAPABILITIES

Since the infant's sensory development can be evaluated only by observing his overt responses to various kinds of stimuli, some of the neonate's response capabilities have been discussed in the preceding section. Hence, the reader is already aware that, even at birth, the infant can make many complex sensory and motor responses. It may reasonably be assumed that these behavior patterns are unlearned, that is, they emerge in spite of the lack of opportunities to learn or practice them. Apparently they are the consequents of biological changes in the organism, including increased size and complexity of the central nervous system, and general anatomical and physiological growth. For example, although fetuses do not suck to obtain nourishment, almost all infants make sucking movements when their lips or cheeks are stimulated. The neonate's pupils contract in response to bright lights and flashes, although he has never experienced these stimuli prenatally.

All the infant's activity does not originate in the same way, and it is important to recognize that activity may be spontaneous, as in sleep; or it may stem from the arousal of a strong need like hunger or pain (95). Moreover, some responses are unlearned, such as reflexive actions to specific stimuli (e.g., sucking response to the touch of the lips); whereas other responses are learned (e.g., sucking to the visual presentation of a bottle).

The following list includes merely a few responses drawn from the neonate's astonishingly extensive behavior repertoire. Complete reviews and classifications have been made by Dennis (21) and summarized by Munn (68) and Thompson (91).

Many of the neonate's responses—pupillary and sucking reflexes, head-mouth orientation movements ("searching" movements in response to stimulation), swallowing, opening and closing the eyes, crying, coughing, vomiting and rejecting foods, turning away the face when it is irritated, and assuming resting and sleeping positions, have "survival value" and are unlearned. They facilitate the infant's physical adjustment in his new environment, keep him healthy, and, to some extent, remove him from damaging or noxious stimuli.

In addition, there are many other localized responses. These include:

(1) shuddering in response to bitter taste; (2) head balancing instigated by changes in bodily position; (3) arm flexion when the hand is pricked with a pin or slapped; (4) the grasp reflex (closing hand tightly, usually stimulated by contact or pressure on finger or palm) which is very strong at birth, but weakens after the first few weeks; (5) the Babinski reflex (extension of the big toe and fanning out of the other toes when the sole of the foot is stroked); (6) in the male, penis erection and raising the testes, elicited by stimulation of the inner thigh.

Coordination of many parts of the body is involved in the newborn infant's more generalized responses including: (1) trunk movements (squirming, twisting, arching the back, and drawing in the stomach); (2) body jerks; (3) shivering, trembling; (4) creeping movements; (5) the startle response, consisting of throwing arms apart and head back, and extending legs, which may be a response to loud noises, falling, and application of hot or cold stimulation.

MOTOR DEVELOPMENT IN THE FIRST YEAR

In addition to the responses present at birth, numerous new motor activities are added to the infant's inventory of abilities during the first year. Some of these emerge independently of learning, i.e., without the benefit of any previous teaching or practice. Apparently the infant becomes capable of these responses and makes them as a consequence of the maturation of certain neural tissues, expansion and increased complexity of the central nervous system, and growth of bones and muscles. In many instances, these seemingly unlearned behavior patterns improve and become better coordinated, more precise, and more accurate after practice.

In this chapter, the emphasis is only on developments in locomotion, reaching, and grasping. No attempt is made to review the whole vast array of responses of the first year. Complete surveys may be found in the works of Gesell and Amatruda (37) and McGraw (66).

Locomotion

SITTING. The response repertoire of the neonate does not include any reflex sitting posture, but the ability to sit develops early (6, 22, 37, 82). On the average, babies are able to sit for a minute, with support, at the age of 3 or 4 months, and by 7 or 8 months, they can do this without support. Once sitting is achieved, there is rapid improvement, so that by 9 months, babies can sit independently for 10 minutes or longer (37).

CRAWLING AND CREEPING. Ames (1) analyzed motion pictures of

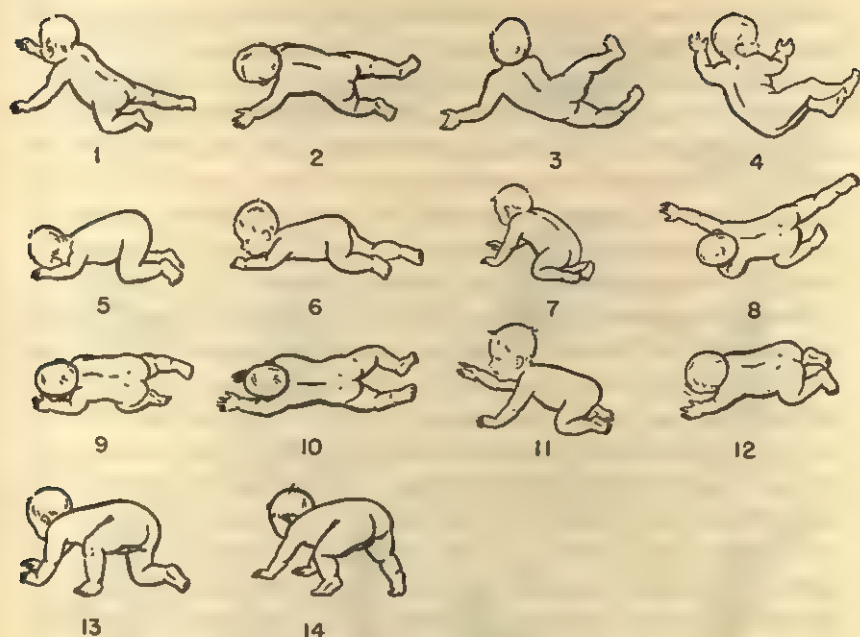


FIG. 16. The fourteen stages of prone progression. (Described by L. B. Ames in *The sequential patterning of prone progression in the human infant. Genet. Psychol. Monogr.*, 1937, 19, 409-460.)

crawling and creeping in 20 infants and concluded that there are 14 stages in the development of these activities (see Fig. 16). There are great individual differences in the ages at which infants reach the various stages, but practically all infants go through the same sequence.

The first stage, thrusting one knee forward beside the body, appeared in half the infants at 28 weeks or younger. The median age for crawling (i.e., moving with the abdomen in contact with the floor) was 34 weeks. At this age, the muscles of the trunk, arms, and legs are not sufficiently strong or coordinated to maintain the body weight. The infants began to creep on hands and knees, which requires new coordination and equilibrium, at a median age of 40 weeks, while creeping on hands and feet, the final stage of prone progression, was attained by a median age of 49 weeks. Infants may skip one or two stages of development, but all of them progress through most of the steps (1).

WALKING. The ability to walk independently also matures gradually, after a series of preliminary achievements. As in other aspects of development, there is a wide range of ages at which the various stages are

attained. The median ages for standing while holding on to furniture, walking when led, pulling up to a stand, standing alone, and walking alone were 42, 45, 47, 62, and 64 weeks, respectively, according to Shirley's data on 25 children (83) (see Fig. 17). The transition from one developmental step to the next is not always smooth and "never does the infant pass completely and irretrievably from one stage into another. There is always a merging of patterns and parts of patterns both in the degree of perfection of the action and in the frequency of occurrence. There are often regressions to the less mature response" (65, 92).

There is considerable evidence (22, 65, 66, 81) that growth changes and maturation of the neural and muscular systems—rather than environmental conditions, experiences, or practice—determine when the child will sit, stand, and walk. For example, Dennis (22) kept a pair of female twins on their backs for the first 9 months of their lives, thus preventing any practice in sitting or standing. Despite these restrictions, they were only slightly retarded in these activities, the most marked retardation being in sitting. When they were given their first opportunities to sit alone at the age of 37 weeks, the restricted twins were not able to do so. Several weeks later, however, they were able to sit alone. Although most children can support their body weight while standing with help by the time they are 40 weeks old, the twins were not able to do this at 52 weeks, when they were given their first opportunity to do so. Within three days, however, both infants could stand with help for at least two minutes. One twin suffered no retardation in crawling, walking when led, or standing or walking independently.

Generally speaking, although these motor behaviors develop without any special practice or teaching by adults, extreme degrees of environmental restriction on opportunity for motor development may retard the onset of walking (23). Dennis compared the motor development of children (1 to 3 years of age) raised in three different Iranian institutions, only one of which provided its children with opportunities to sit and play in the prone position. The children in this relatively more enriched environment were less retarded in onset of walking than those in the institutions where motor experience was more restricted. Dennis concluded,

The results of the present study challenge the widely held view that motor development consists of the emergence of a behavioral sequence based primarily upon maturation. . . . These facts seem to indicate clearly that experience affects not only the ages at which motor items appear but also their very form (23, 57).

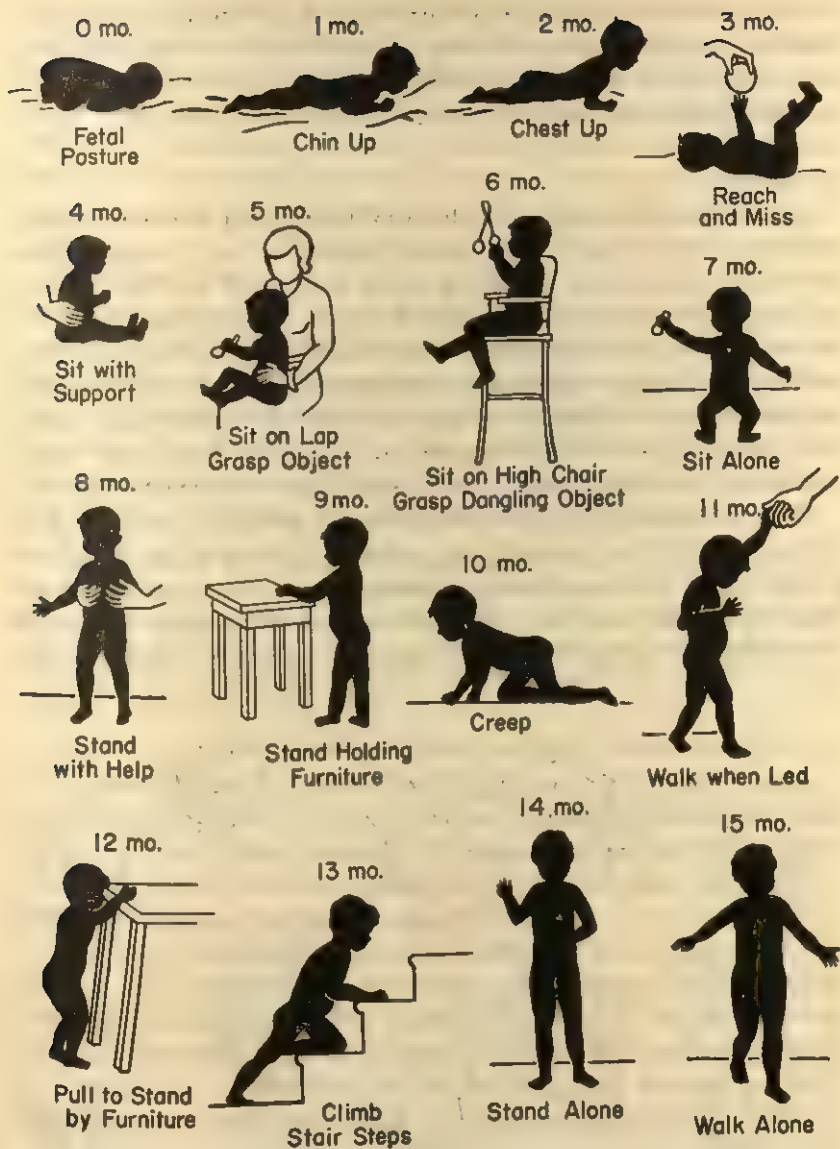


FIG. 17. The development of posture and locomotion in infants. (From *The First Two Years: A Study of Twenty-Five Babies* by Mary M. Shirley [Child Welfare Monograph No. 7, Vol. II.] University of Minnesota Press, Minneapolis. Copyright 1933 by the University of Minnesota.)

It is reasonable to conclude that learning is important in some aspects of early motor development. However, more research is required to determine the exact amount and nature of the experiences that facilitate or retard sitting, walking, and other gross motor coordinations.

Manipulation

Like locomotion, manipulative ability evolves through a series of stages. Analysis of motion pictures of infants reaching for and grasping cubes showed that those under 20 weeks of age do not actually reach for objects, although they may follow them with their eyes. Some infants 20 weeks old stretch their arms in the general direction of the object, making slow, awkward, and angular reaching movements, involving primarily shoulder and elbow action. With increased age, the approach becomes more direct, and the wrist and hand participate. By 60 weeks of age, the infant reaches for attractive objects without superfluous movements (43, 44).

There are ten stages in the development of prehension, according to Halverson (43). The neonate's grasp reflex disappears by the time he is 4 months old. Sixteen-week-old infants make no real contact with an object, but by 20 weeks, they can touch and squeeze things in a primitive way without taking hold firmly. Grasping becomes more successful and



FIG. 18. The development of prehension. (From H. M. Halverson, An experimental study of prehension in infants by means of systematic cinema records. *Genet. Psychol. Monogr.*, 1931, 10, 107-286. With permission of The Journal Press.)

unnecessary movements decrease as the child matures. Thus by 28 weeks of age, he uses his palm smoothly in closing in on a cube, but his thumb and fingers are not involved. The forefinger begins to play a part in grasping at about 36 weeks. In the final stages of the development of prehension, thumb and forefinger function together, and other fingers are also used precisely in securing a cube. By the time the child is 60 weeks of age, his grasp is much like an adult's (see Fig. 18).

Developmental Trends

First-year sensory and motor developments reflect several general directional trends. The *cephalocaudal* or head to foot trend, is illustrated in the relatively early accomplishment of head movements, visual fixation, and eye-hand coordination, and the relatively late appearance of standing and walking. The limbs and muscles of the upper part of the body become functionally effective before the lower limbs. In walking, appropriate coordination of the arms precedes that of the legs.

The principle is well illustrated in the behavior characteristics of the twenty week old infant. His trunk is still so flaccid that he must be propped or strapped in a chair to maintain a sitting posture. When he is so secured, however, his eyes, head, and shoulders exhibit heightened activity and intensified tonus. The pelvic zone and the lower extremities at 20 weeks are, in comparison, very immature (36, 341).

Progress in the development of motor responses during the first year also follows a roughly *proximodistal* direction, i.e., from the central to the peripheral segments of the body. Thus, in reaching, the shoulders and elbows are used before the wrist and fingers. In both prone and erect locomotion, the upper arm and upper leg are brought under control before the forearm, foreleg, hands and feet.

The trend *from mass to specific* activities or from large to smaller muscles is also evident in the motor advances of the first year. The gross awkward movements of early grasping are replaced by more precise, refined movements of the thumb and forefinger. Locomotion is initially accompanied by excess bodily movements, but these decrease gradually until only the appropriate muscles and limbs are involved.

Speech Development

There are four major classes of responses the child must master in order to communicate effectively. The four major variables in any language are *phonemes*, *morphemes*, *morphological rules* and *syntactic rules* (9). *Phonemes* are the fundamental elements of a language and

include the basic vowels and consonants. The sounds of *p* and *b* are examples of phonemes. Many phonemes occur spontaneously in the child's babbling, but a certain amount of learning is involved in refining the production of the naturally occurring phonemes so that they sound more like the articulations made by adults. The morpheme is the smallest meaningful element in a language. The morphemes *ma* or *no* have distinct and relatively unambiguous meanings. Morphological rules are the rules that govern the constitution of words. For example, *ble* is added to *ta* to form *table*; *ed* is added to *work* to form the past tense of the verb; *s* is added to *John* to form the possessive *John's*; *ing* is added to *sing* to form the participle *singing*. Finally, *syntactic rules* govern the constitution of sentences and phrases from words. For example, English-speaking children learn the syntactic rule that objects of action follow rather than precede verbs. Thus, the 5-year-old child knows that "The boy hit the ball" means something different from "The ball hit the boy."

In the first year of life, the major language developments include the emergence of about one-half of the major phonemes and some simple morphemes. The infant's earliest sounds are primarily reflexive, associated with automatic responses such as breathing, swallowing, and hiccupping. He has not yet learned any specific sounds to express particular needs.

The most systematic research on speech development in early infancy has been conducted by Irwin and his associates at the University of Iowa (18, 19, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56). They recorded phonetically the speech sounds made by 40 infants during the first 10 days of life. The vowel sounds uttered were *i* (as in bit), *e* (as in bet), *a* (as in bat), or *u* (as in but), *a* being the one all infants made. The aspirate *h* (as in house) was the most frequently used consonant, and *w* and *k* were also noted occasionally. The consonants *m*, *l*, and *b* were not heard during this period.

Throughout infancy, there are marked changes in the nature and number of sounds produced. In a 30-month longitudinal (follow-up) study of speech development, Irwin (47, 48, 49, 50, 53, 54) phonetically transcribed monthly samples of the speech sounds uttered by 95 infants during a short test period (30 breaths). Speech development was measured in terms of phoneme types (elemental speech sounds listed in the International Phonetic Alphabet) and phoneme frequency (the number of times each of the types is used by the infant).

The data revealed rapid and far-reaching expansion in the infant's speech catalogue during the first year. As early as "the second quarter of

the first year of life infants produce most of the vowel elements and about half of the consonants" (64, 507). The average baby under 2 months of age has 7 phonemes in its speech repertory; at 6 months he has 12, and at a year, 18. (Adult American speech includes 35 phonemes.) The number of sounds uttered also multiplies rapidly during this period. During the first 2 months, infants vocalized an average of 63 sounds (counting all repetitions) in the test period, but at 6 months, the average number rose to 74, and at a year it was about 90 (47, 53, 54).

Throughout the first year, the number of vowel types used exceeds the number of consonant types. The vowel-consonant ratio is 5:1 during the first month, but this discrepancy becomes reduced gradually until after the first year, consonants predominate. Adults have a consonant-vowel ratio of 1.4:1 (50).

About 90 percent of the earliest consonant sounds made by the infant are glottals (aspirate *h* or stops and catches made in the throat), but by the end of the first year, these sounds constitute only about 30 percent of the infant's consonants. Labials (for example, *p*, *b*, *m*, *w*, *wh*) and labiodentals (*f* and *v*) and postdentals (*t*, *d*, *n*) are practically nonexistent in the neonate's repertory, but they become quite frequent during the first year (48, 49).

The regularity of trends in sound production provides some evidence that early sound patterns are dependent primarily on maturation and changes in anatomical, neuromuscular systems. For example, the postural change involved in sitting "must affect the shape of the oral cavity, especially by affecting the normal position of the soft palate, which undoubtedly accounts at least in part for the forward movement of the control of muscles involving the later-appearing consonants" (64, 513).

Moreover, children of all nationalities seem to go through the same sequence of speech development. "Children who are hearing only English use German [vowel] sounds, French guttural *r*, and a wide variety of sounds they will not be able to produce as English speaking adults" (67, 146).

A child cannot learn verbal responses until he is old enough and mature enough to learn them. Maturation sets the pace. With a normal environment the child's speech awaits a step by step unfolding of the growth process. Consequently we find a succession of developmental stages that are quite similar in all children. By manipulating the environment of the child we can modify or delay his language development, but we shall never teach a baby to utter prepositional phrases before he begins to babble. The successive stages of language development are similar in all normal children (67, 141).

Environment and Language

Even within the first year, however, environmental factors may play an important role in language development. For example, babies under 6 months of age living in unstimulating orphanage environments are often retarded both in frequency of vocalizations and number and types of sounds (see Fig. 19). Further, during the second half of the first year, infants raised in middle-class homes show more frequent and varied sounds than children of working-class families. This finding suggests that middle-class mothers may do more vocalizing to their infants which, in turn, may stimulate the child's vocal expression (see Fig. 20). It has also been found that rewarding the 3-month-old child's utterances by smiling and touching his abdomen after each sound leads to an increase in the amount of infant vocalization (75). The infant's verbal behavior apparently can be modified through experience, and can be increased or decreased, depending on the amounts of social stimulation the child's vocalizations receive. Since the vocalizations of infants in institutions are less apt to attract the attention of an adult, and are, therefore, not frequently rewarded, the frequency of such responses among these children is not likely to increase at a normal rate.

Once the elementary speech sounds are acquired, progress in speech consists of using them in a variety of ways and in different combinations.

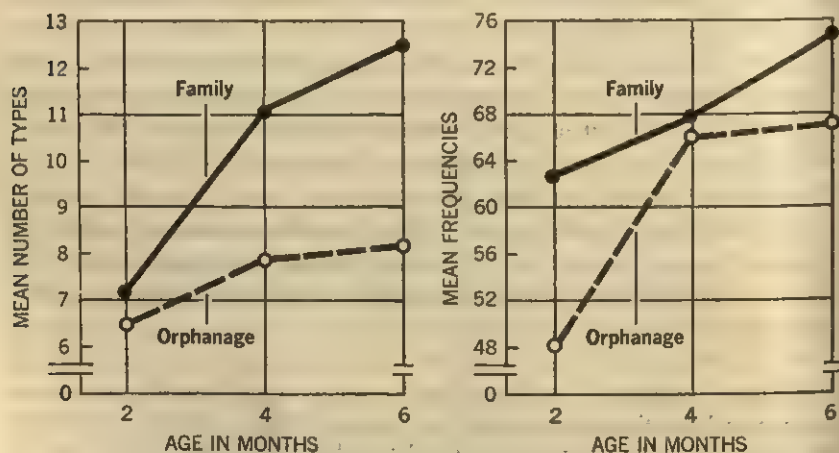


FIG. 19. Mean frequencies of vocalizing and mean numbers of types of sounds in the vocalizing of infants in homes and institutions. (From A. J. Brodbeck and O. C. Irwin, *The speech behavior of infants without families. Child Developm.*, 1946, 17, 145-156. With permission of the Society for Research in Child Development and Arthur J. Brodbeck.)

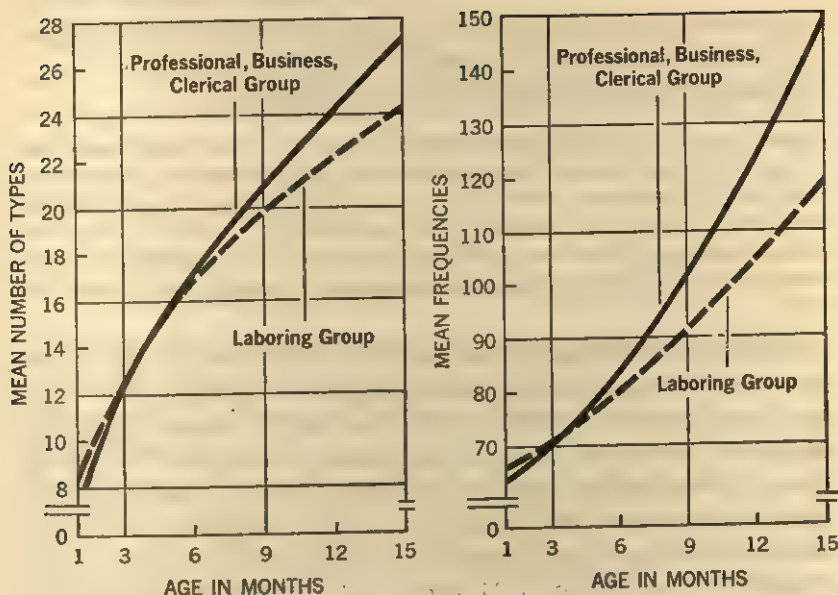


FIG. 20. Mean frequencies of vocalizing and mean numbers of types of sounds in the vocalizing of infants of laboring and professional parents and of infants in homes and institutions. (From O. C. Irwin, *Infant speech*. *J. Speech and Hearing Disorders*, 1948, 13, 224-225, 320-326.)

Individual differences in the rates of speech development are apparent from earliest infancy.

Shirley (82) recorded all the language responses of her 25 infant subjects during testing sessions, and found that the first distinct syllable sound was uttered at the median age of 8 weeks, while two-syllable sounds were recorded at a median age of 13 weeks. Cooing and babbling appeared by the third month and continued until about the end of the first year. According to these data, "talking" to a person, singing tones, and expressive sounds were observed at median ages of 25, 32, and 38 weeks, respectively. Infants' speech sounds are less precise and definite than those of adults, but during the babbling period, syllables become sharper and more distinct.

One of the intriguing questions that has long baffled psychologists is why infants continue to babble to themselves, even though no one responds to their vocalizations. It is believed that the child's perception of his own voice production acts as a stimulant to further vocalization during the latter-half of the first year. The primitive sounds of the 1- or

2-month-old baby, however, appear to be independent of either environmental factors or the child's perception of these noises.³

Imitation of sounds generally begins after 9 months.

Most present day psychologists seem to agree . . . that new sounds are not learned by imitation of the speech of others, but rather that they emerge in the child's spontaneous vocal play as a result of maturation, and that the child imitates only those sounds which have already occurred in its spontaneous babblings. This view holds that imitation of the speech of others serves only to call attention to new combinations of sounds already used (64, 517).

It is difficult to determine when the child actually says his first meaningful word. Parents, anxiously anticipating their offspring's accomplishments, may jump to the conclusion that their baby has begun to talk if he happens to utter a sound vaguely resembling a word. On the basis of systematic observations, different psychologists have reached different conclusions regarding the average age of the onset of talking. When mothers' reports are used as basic data, the appearance of the first word is found at an average age of 11 months (14, 16). While there is a great deal of individual variation, data indicate that the average child generally says his first word sometime around the end of the first year (89).

Since much of the child's early babbling consists of repetitions of identical or similar syllables, the first words uttered are usually reduplicated monosyllables such as bye-bye, mama, or dada. The first word spoken is characteristically a noun or interjection but often functions as a whole sentence. For example "momma" may mean, *where is mother* or *I want mother*, or *there is mother*, depending upon the inflection and accompanying behavior.

Most normal children begin to walk before they begin to talk, but there are many exceptions. Several investigators report that progress in linguistic development may slow down or even cease while new motor skills are being mastered. For example, one investigator (83) found that children's vocalizations decreased in frequency during periods when they were beginning to reach for objects, to sit alone, or to walk. Apparently, "speech development is held in abeyance at the time when motor progress is most rapid" (64, 597).

This discussion of early speech growth has emphasized the child's overt utterances, for these are easily observed. The question of how much language comprehension the child acquires during the first year is more

³ Lenneberg (personal communication) has found that the vocalizations of a congenitally deaf child born to deaf, mute parents do not differ from those of normal infants during the first two months of life. It would appear, therefore, that these early sounds are the result of the spontaneous activity of the respiratory and vocal apparatus.

difficult to assess. It is probable that the 1-year-old child understands much more than he can express and, in many cases, is potentially capable of saying words that he has not actually uttered. As we shall see in Chapters 5 and 6, the desire to speak and the amount of reward speech receives are important determinants of the frequency and quality of the young child's language products.

MENTAL DEVELOPMENT IN THE FIRST YEAR

Although the mental activity of the infant is markedly different from the problem-solving and symbolic processes of the 4-year-old, there is, in the infant, a beginning perception and comprehension of the world. The usual techniques used to study intellectual abilities in older children (e.g., IQ tests, tests of reading skills) cannot be applied to infants. Consequently, it has proved difficult to study the mental life of the infant and preverbal child. However, the observations of Jean Piaget, a highly creative Swiss psychologist, have led to some stimulating hypotheses regarding the development of intelligence in the child. Here, and in succeeding chapters, we will present Piaget's views on mental development. Instead of translating his concepts into our terms or attempting to integrate his results with other findings, we shall present his theory intact. This is done because we believe the reader should have a clear conception of Piaget's contribution to the understanding of intellectual development. A critique of his work is reserved for Chapter 13.

Piaget feels that intelligence is the ability to adapt to the environment and that the development of this ability passes through a series of maturational stages. Initially, Piaget distinguishes between two major stages in intellectual development: *sensorimotor* intelligence (approximately 0 to 2 years of age), and *conceptual* intelligence (age 2 to maturity). During the sensorimotor stage the child's adaptations do not involve extensive use of symbols or language. The ability of the 10-month-old to find a toy under a pillow, or to shake a rattle in order to make a noise does not require knowledge of a language. These acts are considered preverbal.

The sensorimotor phase is further differentiated into six developmental stages covering the first 18 months of life (69). During the first stage of *reflexes* (birth to 1 month), innate reflexes, such as sucking movements to the stimulus of a nipple, become more efficient. These responses comprise the major adaptive behavior of the organism. The second stage, called *primary circular reactions*, is characterized by the appearance of repetitions of simple acts that are repeated for their own sake. Examples of primary circular reactions include repetitive sucking, repetitive open-

ing and closing of fists, and repetitive fingering of a blanket. There seems to be no intent or purpose to this activity, and, in contrast to the next stage, the child does not seem to be interested in the effect that his behavior has on the environment.

The succeeding four stages contain more intentional activity, according to Piaget (69). In the third stage, *secondary circular reactions* (4 to 6 months), the child repeats responses which produce interesting results. For example, the child will repeatedly kick his legs in order to produce a swinging motion in a toy suspended over his crib. To a naive observer it appears that the child has accidentally discovered that a certain act (kicking his legs) produces an interesting change in the external environment (the toy swings), and the child repeats the act in order to see the change in the environment. In the earlier stage of primary circular reactions, the act was repeated for its own sake, rather than to produce an interesting effect.

In the fourth stage, *coordination of secondary reactions*, (7 to 10 months) the child begins to solve simple problems. The infant now uses a response he has already mastered as a means of obtaining a specific goal object. For example, he will now knock down a pillow in order to obtain a toy hidden behind it. In the preceding state (secondary circular reactions) the child might repeatedly knock down a pillow merely to watch it fall. In this later stage, he uses this learned response as a means to obtain a desired goal, and not as an end in itself.

During the fifth stage (*tertiary circular reactions*) the child begins to show active trial-and-error experimentation. During this period (11 to 18 months) the child varies his responses toward the same object or tries out new responses to obtain the same goal. For example, the child who has learned to knock down a pillow with his fist to get a toy may then attempt to knock it down with his feet or use a rattle to push it down. The child is now manifesting the essence of problem-solving behavior. He is trying out new responses (means) to discover which ones are most effective in arriving at the goal (the end). The child has now made a differentiation between his actions and their end result in the environment. He has begun to learn that there is an external world of objects that is separate from himself, and, further, that he can have an effect upon the world about him.

In the sixth and final stage—the invention of new means through *mental combinations* (18 months on)—the child appears to *think* about the effects of certain responses, evaluating the effectiveness of actions before acting. This is the first sign of foresight, and marks the primitive beginning of the

era of conceptual thought. For example, one of Piaget's subjects wished to put a chain into an opening in a box which was too small for the chain. The child looked at the chain, then at the opening, as if she were mentally estimating the size of the opening. In the end, she did not attempt to place the chain in the opening. In the preceding stages, the child would have tried to put the chain into the hole before abandoning the project.

In later chapters, subsequent stages of conceptual thought (age 2 on) will be described. (See pp. 253-254.)

In the course of his work on the growth of intelligence, Piaget has made some ingenious observations on the development of a variety of concepts that all children must acquire. These include concepts of physical causality, justice, time, and, in the infant, object permanence or object constancy. The stages the child passes through in acquiring the idea that external objects have permanence will be outlined briefly in order to communicate the flavor of Piaget's observations.

During the first 2 or 3 months of life, the child's visual universe, according to Piaget, is made up of a series of fleeting images without permanence. It is as if the child were on a train watching the world pass before him. He follows a stimulus until it passes out of his line of vision, and he then abandons any search for it. Moreover, his attention is easily captured by any new stimulus.

From 3 to 6 months, the child coordinates vision and movements of his arms and hands. He will now grab for objects that he can see, but will not reach for objects outside his immediate visual field.

During the last 3 months of the first year the child advances one step further. He will now reach for an object that is hidden from view *if he has watched it being hidden*. Thus, if the child sees the mother place a bottle under a blanket he will search for the bottle there.

During the first 6 months of the second year the child becomes capable of accounting for "spatial displacements" of objects. If an object is hidden under a pillow, the child in the preceding stage will search for it, but if he then sees the object being hidden under a second pillow, he will continue to look for it under the first pillow. In this later stage, however, the child will search for the object under the second pillow, indicating a recognition that objects can be displaced.

In the final stage of acquiring the concept of object permanence, the child will search for objects that he has not actually seen being hidden. For example, if the mother shows the child a toy fish in a box, puts the fish and box under a cover, and then removes the box without the fish, the child will search for the fish under the cover, as though he realized

that it must be there. This behavior does not occur during the earlier stages, and suggests that the child becomes aware that objects have permanence and do not just disappear (69).

From this summary of Piaget's views of mental development in the first year, it can be seen that the coordination of simple actions with incoming perceptions (sensorimotor acts) predominate in the mental activity of the child. It is not known whether precocious development of these behaviors is related to the precocious development of vocabulary, comprehension of speech, or the ability to master arithmetic concepts. It cannot be assumed that advanced sensorimotor development at 1 year of age is an index of superior linguistic or numerical ability in later years. Although marked retardation in sensorimotor development at 1 year may be a prognostic sign of future retardation in the child, the psychological significance of advanced or precocious sensorimotor development is still largely a mystery.

EMOTIONAL DEVELOPMENT

An emotion is characterized by the occurrence of a fairly intense physiological response (sudden increase in heart rate, contraction of stomach muscles, increase in blood pressure, increase in muscle tension, release of adrenal hormone) in association with a specific internal need, image, thought, or external stimulus. The name we apply to the emotion—fear, joy, sorrow—is determined by the content of the image, nature of the need, or meaning of the external arousing stimulus.

Highly differentiated emotions require the learning of many complex and differentiated symbols. For example, the child cannot experience the emotion of guilt until he comprehends the meaning of a violation or misdeed. Similarly, the emotions of sadness and depression require that the child shall have learned what it means to lose a loved one, to fail at a task, or to fail to obtain some desired goal. Since his background of experience and comprehension is limited, the infant's repertoire of emotions is also limited, probably consisting at first simply of pleasure and pain. Although the infant's crying, smiling, or grimacing may appear overtly similar to complex adult emotional reactions, the similarity is probably only superficial. It is doubtful that young infants experience complex emotional states such as joy, anxiety, or disgust.

Nevertheless, many of the overt responses normally regarded as signs of an emotional state, such as flushing, laughing, thrashing of arms, and lowering of the head and face, appear to develop early in most children. The physiological concomitants of emotional excitement are also part of

the infant's unlearned capabilities. For example, infants as young as 3 months manifest the galvanic skin reflex (the sweating response which indicates decreasing skin resistance), or changes in heart rate, following mild pain stimulation and loud sounds (12, 58).

While the infant may be capable of making many of the physiological and motor reactions that are involved in adult emotion, he has not attached a symbolic label to these reactions and has not associated them with specific situations. Emotional development involves forming associations between specific physiological reactions and postural responses on the one hand, and ideational responses to complex situations on the other (e.g., crying at the loss of a dog, jumping with joy after winning a contest, turning away and blushing after saying a prohibited word). Thus, an adult emotion is the product of a learned association between a specific thought or situation and a physiological or postural reaction. The 1-month-old infant will not lower his face in a bashful gesture when a stranger enters the room; the 3-year-old child is likely to do so.

Maturation of the child's perceptual capacities plays an important role in emotional development. As he matures he becomes better able to discriminate among stimuli such as smiling and frowning faces, pleasant and unpleasant voices, and friendly and angry gestures. Thus, many babies between 2 and 6 months of age smile indiscriminately in response to nodding faces or masks, regardless of whether the facial expression is pleasant or unpleasant from an adult point of view (85). However, by the second half of the first year, some infants show evidence of discrimination among people by smiling at those they know and showing a fear reaction to strangers. (See Chapter 6.)

Variations in constitutional factors may also influence the child's emotional reactivity and intensity of emotional experiences. Neonates differ markedly from one another in susceptibility and responsiveness to all kinds of emotional stimulation, as they do in general activity level (cf. p. 88). Research suggests that children who are irritable immediately after birth often maintain this characteristic throughout early infancy (84). There are also vast individual differences among young infants in reactivity of the autonomic nervous system and intensity of physiological changes during emotionally charged episodes. Such differences in sensitivity, probably attributable to a combination of hereditary, prenatal, and early postnatal influences, may affect subsequent emotional development.

Even cursory observation shows that, with advancing age, emotional response patterns become more varied, differentiated, and recognizable. For example, as the infant matures, fear and anger responses become easier to differentiate and identify. The effectiveness of specific stimuli in

eliciting anger and fear varies with the duration and intensity of the stimuli, as well as with the child's physiological state and activity at the moment. For example, when frustrated by having their bottles withdrawn, infants who have consumed a great deal of milk react more slowly than those who had only a small amount (77). Infants are less likely to be startled by loud noises when they are being held securely than when they are alone in a strange situation. Detailed discussion of the origins of fear in young children is reserved for a later chapter (cf. p. 142).

In sum, changes in emotional responses are products of complex interactions of maturation and learning. The child's ability to manifest increasingly differentiated emotional responses, such as sadness, fear, or delight, is partly dependent on biological maturation and partly upon his learning experiences.

REFERENCES AND ADDITIONAL READING

1. Aldrich, C. A., Sung, C., & Knop, C. A. The crying of newly born babies. II. The Individual phase. *J. Pediatrics*, 1945, 27, 89-96.
2. Ames, L. B. The sequential patterning of prone progression in the human infant. *Genet. Psychol. Monogr.*, 1937, 19, 409-460.
3. Anastasi, A. *Differential psychology: individual and group differences in behavior*. New York: Macmillan, 1937.
4. Bakwin, H., & Bakwin, R. M. Body build in infants. II. The proportions of the external dimensions of the healthy infant during the first year of life. *J. clin. Invest.*, 1931, 10, 369-375.
5. Bakwin, H., & Bakwin, R. M. Growth of thirty-two external dimensions during the first year of life. *J. Ped.*, 1936, 8, 177-183.
6. Bayley, N. The development of motor abilities during the first three years. *Monogr. soc. res. child Developm.*, 1935, No. 1.
7. Bell, R. Q. Relations between behavior manifestations in the human neonate. *Child Developm.*, 1960, 31, 463-478.
8. Bergman, P., & Escalona, S. *Unusual sensitivities in very young children. Psychoanalytic Study of Child*. Vol. III-IV. New York: Int. Univer. Press, 1949, 333-352.
9. Berko, J., & Brown, R. Psycholinguistic research methods. In P. Mussen (Ed.), *Handbook of research methods in child development*. New York: Wiley, 1960.
10. Berlyne, D. E. The influence of the albedo and complexity of stimuli on visual fixation in the infant. *Brit. J. Psychol.*, 1958, 49, 315-318.
11. Brackbill, Y. Extinction of the smiling response in infants as a function of reinforcement schedule. *Child Developm.*, 1958, 29, 115-124.
12. Bridger, W. H. Sensory habituation and discrimination in the human neonate. *Amer. J. Psychiatry*, 1961, 117, 991-996.

13. Brodbeck, A. J., & Irwin, O. C. The speech behavior of infants without families. *Child Developm.*, 17, 145-156.
14. Buhler, C. *The first year of life*. (Trans. by Greenberg and Ripin) New York: Day, 1930.
15. Cameron, N., & Margaret, A. *Behavior pathology*. Boston: Houghton Mifflin, 1951.
16. Cattell, P. *The measurement of intelligence of infants and young children*. New York: The Psychological Corporation, 1940.
17. Chase, W. P. Color vision in infants. *J. exp. Psychol.*, 1937, 20, 203-222.
18. Chen, H. P., & Irwin, O. C. Infant speech: vowel and consonant types. *J. Speech Disorders*, 1946, 11, 27-29.
19. Chen, H. P., & Irwin, O. C. Development of speech during infancy: curve of differential percentage. *J. exp. Psychol.*, 1946, 36, 522-525.
20. Crudden, C. H. Reactions of newborn infants to thermal stimuli under constant tactual conditions. *J. exp. Psychol.*, 1937, 20, 350-370.
21. Dennis, W. A description and classification of the responses of the newborn infant. *Psychol. Bull.*, 1934, 31, 5-22.
22. Dennis, W. Infant development under conditions of restricted practice and of minimum social stimulation. *Genet. Psychol. Monogr.*, 1941, 23, 143-191.
23. Dennis, W. Causes of retardation among institutional children. *Iran. J. genet. Psychol.*, 1960, 96, 47-59.
24. Dennis, W., & Dennis, M. G. The effect of cradling practices upon the onset of walking in Hopi children. *J. genet. Psychol.*, 1940, 56, 77-86.
25. Disher, D. R. The reactions of newborn infants to chemical stimuli administered nasally. *Ohio State Univer. Stud., Contr. Psychol.*, 1934, No. 12, 1-52.
26. Eichorn, D. H., & Jones, H. E. Maturation and behavior. In Seward, G., & Seward, J. P. (Eds.), *Current psychological issues*. New York: Holt, 1958, 211-248.
27. Escalona, S. Emotional development in the first year of life. In Senn, M. J. E. (Ed.), *Sixth conference on problems of infancy and childhood*. Josiah Macy, Jr. Foundation, 1953, 11-92.
28. Escalona, S., & Heider, G. M. *Prediction and outcome*. New York: Basic Books, 1959.
29. Fantz, R. L. The origin of form perception. *Scientific American*, 1961, 204, 66-72.
30. Fantz, R. L., Pattern vision in young infants. *Psychol. Rec.*, 1958, 8, 43-47.
31. Fries, M. E., & Lewi, B. Interrelated factors in development: a study of pregnancy, labor, delivery, lying-in period, and childhood. *Amer. J. Orthopsychiat.*, 1938, 8, 726-752.
32. Fries, M. E., & Woolf, P. J. Some hypotheses on the role of the congenital activity type in personality development. *Psychoanal. Study of Child*. Vol. VIII. New York: Int. Univer. Press, 1953, 48-62.
33. Garn, S. M. Roentgenogrammetric determinations of body composition. *Hum. Biol.*, 1957, 29, 337-353.

34. Garn, S. M. Fat, body size, and growth in the newborn. *Hum. Biol.*, 1958, 30, 265-280.
35. Garn, S. M., & Moorees, C. F. A. Stature, body-build, and tooth emergence in Aleutian Aleut Children. *Child Developm.*, 1951, 22, 261-270.
36. Gesell, A. The ontogenesis of infant behavior. In L. Carmichael (Ed.), *Manual of child psychology* (2nd ed.). New York: Wiley, 1954, 335-373.
37. Gesell, A., & Amatruda, C. S. *Developmental diagnosis: normal and abnormal child development*. New York: Hoeber, 1941.
38. Gesell, A., Halverson, H. M., Thompson, H., Ilg, F. L., Costner, B. M., Ames, L. B., & Amatruda, C. S. *The first five years of life: a guide to the study of the preschool child*. New York: Harper, 1940.
39. Gesell, A., & Thompson, H. Learning and growth in identical infant twins: an experimental study by the method of co-twin control. *Genet. Psychol. Monogr.*, 1929, 5, 1-124.
40. Gesell, A., & Thompson, H. *The psychology of early growth*. New York: Macmillan, 1938.
41. Gibson, E. J., & Walk, R. R. The "visual cliff." *Scientific American*, 1960, 202, 2-9.
42. Grossman, H. J., & Greenberg, N. H. Psychosomatic differentiation in infancy. *Psychosom. Med.*, 1957, 19, 293-306.
43. Halverson, H. M. An experimental study of prehension in infants by means of systematic cinema records. *Genet. Psychol. Monogr.*, 1931, 10, 107-286.
44. Halverson, H. M. Complications of the early grasping reactions. *Genet. Psychol. Monogr.*, 1936, 47, 47-63.
45. Irwin, O. C. The amount and nature of activities of newborn infants under constant external stimulating conditions during the first ten days of life. *Genet. Psychol. Monogr.*, 1930, 8, 1-92.
46. Irwin, O. C. Proximo-distal differentiation of limbs in young organisms. *Psychol. Rev.*, 1933, 40, 467-477.
47. Irwin, O. C. Development of speech during infancy: curve of phonemic frequencies. *J. exp. Psychol.*, 1947, 37, 187-193.
48. Irwin, O. C. Infant speech: consonant sounds according to place of articulation. *J. Speech Disorders*, 1947, 12, 397-401.
49. Irwin, O. C. Infant speech: consonant sounds according to manner of articulation. *J. Speech Disorders*, 1947, 12, 402-404.
50. Irwin, O. C. Infant speech: development of vowel sounds. *J. Speech Hearing Disorders*, 1948, 13, 31-34.
51. Irwin, O. C. Infant speech: the effect of family occupational status and of age on sound frequency. *J. Speech Hearing Disorders*, 1948, 13, 320-323.
52. Irwin, O. C. Infant speech: speech sound development of sibling and only infants. *J. exp. Psychol.*, 1948, 38, 600-602.
53. Irwin, O. C. Speech development in the young child: 2. Some factors related to the speech development of the infant and young child. *J. Speech Hearing Disorders*, 1952, 17, 269-279.
54. Irwin, O. C., & Chen, H. P. Infant speech: vowel and consonant frequency. *J. Speech Hearing Disorders*, 1946, 11, 123-125.

55. Irwin, O. C., & Chen, H. P. Development of speech during infancy: curve of phonemic types. *J. exp. Psychol.*, 1946, **36**, 431-436.
56. Irwin, O. C., & Curry, F. Vowel elements in the crying vocalization of infants under ten days of age. *Child Developm.*, 1941, **12**, 99-109.
57. Jensen, K. Differential reactions to taste and temperature stimuli in newborn infants. *Genet. Psychol. Monogr.*, 1932, **12**, 363-479.
58. Jones, H. E. The galvanic skin reflex in infancy. *Child Developm.*, 1930, **1**, 106-110.
59. Jones, H. E., & Jones, M. C. Fear. *Childh. Educ.*, 1928, **5**, 136-143.
60. Kleitman, N., & Engelmann, T. G. Sleep characteristics of infants. *J. appl. Physiol.*, 1953, **6**, 269-282.
61. Knop, C. The dynamics of newly born babies. *J. Pediat.*, 1946, **29**, 721-728.
62. Ling, B. C. I. A genetic study of sustained visual fixation and associated behavior in the human infant from birth to six months. *J. genet. Psychol.*, 1942, **61**, 227-277.
63. Lipsitt, L. P., & Levy, N. Pain threshold in the human neonate. *Child Developm.*, 1959, **30**, 547-554.
64. McCarthy, D. Language development in children. In L. Carmichael (Ed.), *Manual of child psychology* (2nd. ed.). New York: Wiley, 1954, 492-630.
65. McGraw, M. B. *Growth: a study of Johnny and Jimmy*. New York: Appleton-Century, 1935.
66. McGraw, M. B. Maturation of behavior. In L. Carmichael (Ed.), *Manual of child psychology*. New York: Wiley, 1946, 332-369.
67. Miller, G. A. *Language and communication*. New York: McGraw-Hill, 1951.
68. Munn, N. L. *Psychological development: an introduction to genetic psychology*. Boston: Houghton Mifflin, 1938.
69. Piaget, J. *The construction of reality in the child*. New York: Basic Books, 1954.
70. Pinneau, S. R. A critique of the articles by Margaret Ribble. *Child Developm.*, 1950, **21**, 203-228.
71. Pratt, K. C. The effects of repeated auditory stimulation upon the general activity of newborn infants. *J. genet. Psychol.*, 1934, **44**, 96-116.
72. Pratt, K. C. The effects of repeated visual stimulation on the activity of newborn infants. *J. genet. Psychol.*, 1934, **44**, 117-126.
73. Pratt, K. C. The neonate. In L. Carmichael (Ed.), *Manual of child psychology* (2nd ed.). New York: Wiley, 1954, 215-291.
74. Pratt, K. C., Nelson, A. K., & Sun, K. H. The behavior of the newborn infant. *Ohio State Univer. Stud., Contr. Psychol.*, 1930, No. 10.
75. Rheingold, Harriet, Gewirtz, J., & Ross, H. Social conditioning of vocalizations in the infant. *J. comp. Physiol. Psychol.*, 1959, **52**, 68-73.
76. Richmond, J. B., & Lustman, S. L. Autonomic function in the neonate. *Psychosom. Med.*, 1955, **17**, 269-273.
77. Sears, R. R., & Sears, P. S. Minor studies of aggression: V. Strength of frustration-reaction as a function of strength of drive. *J. Psychol.*, 1949, **9**, 297-300.
78. Sherman, M. The differentiation of emotional responses in infants: I. Judg-

- ments of emotional response from motion-picture views and from actual observation. *J. comp. Psychol.*, 1927, 7, 265-284.
79. Sherman, M. The differentiation of emotional responses in infants: II. The ability of observers to judge the emotional characteristics of the crying of infants and of the voice of the adult. *J. comp. Psychol.*, 1927, 7, 335-351.
 80. Sherman, M., & Sherman, I. C. Sensori-motor responses in infants. *J. comp. Psychol.*, 1925, 5, 53-68.
 81. Sherman, M., Sherman, I. C., & Flory, C. D. Infant behavior. *Comp. Psychol. Monogr.*, 1936, 12, No. 4.
 82. Shirley, M. M. The first two years, a study of twenty-five babies. Vol. I. Postural and locomotor development. *Inst. Child Welf. Monogr.*, Ser. No. 6. Minneapolis: Univer. of Minn. Press, 1933.
 83. Shirley, M. M. The first two years, a study of twenty-five babies. Vol. II. Intellectual development. *Inst. Child Welf. Monogr.*, Ser. No. 8. Minneapolis: Univer. of Minn. Press, 1933.
 84. Shirley, M. M. The first two years, a study of twenty-five babies. Vol. III. Personality manifestations. *Inst. Child Welf. Monogr.*, Ser. No. 8. Minneapolis: Univer. of Minn. Press, 1933.
 85. Spitz, R. A., & Wolf, K. M. The smiling response: A contribution to the ontogenesis of social relations. *Genet. Psychol. Monogr.*, 1946, 34, 57-125.
 86. Spock, B. *The pocket book of baby and child care*. New York: Pocket Books, 1950.
 87. Steggerda, M., & Hill, J. J. Eruption time of teeth among whites, Negroes, and Indians. *Amer. J. Orthodontics and Oral Surgery*, 1942, 26, 327-335.
 88. Stubbs, E. M. The effect of the factors of duration, intensity, and pitch of sound stimuli on the responses of newborn infants. *Univer. Iowa Stud. Child Welf.*, 1934, 9, No. 4, 75-135.
 89. Terman, L. M., et al. *Genetic studies of genius*. Vol. 1. *Mental and physical traits of a thousand gifted children*. Stanford, California: Stanford Univer. Press, 1925.
 90. Terman, L. M., & Tyler, L. E. Psychological sex differences. In L. Carmichael (Ed.), *Manual of child psychology* (2nd ed.). New York: Wiley, 1954.
 91. Thompson, G. G. *Child psychology: growth trends in psychological adjustment*. Boston: Houghton Mifflin, 1952.
 92. Thompson, H. Physical growth. In L. Carmichael (Ed.), *Manual of child psychology* (2nd ed.). New York: Wiley, 1954, 292-334.
 93. Watson, E. H., & Lowrey, G. H. *Growth and development of children*. (3rd ed.). Chicago: Yearbook Publishers, 1958.
 94. Watson, J. B. *Psychology from the standpoint of a behaviorist*. Philadelphia: Lippincott, 1924.
 95. Wolff, P. H. Observations on newborn infants. *Psychosom. Med.*, 1959, 21, 110-118.

5

LEARNING

We have emphasized the fact that the child's behavior is a very complex function of his biological nature and the learning that results from interaction with the environment—especially the social environment. Social interaction is emphasized because people are the primary sources of motivations, fears, and rewards for other human beings. Most of a child's desires, skills, values, fears, and attitudes are learned. In turn, these learned attitudes and motives influence his choice of vocation, his selection of a marital partner, his performance in school; even the symptoms he may develop should he become emotionally disturbed. It will be useful, therefore, to devote some time to a discussion of how children learn. Mastery of the theoretical principles of learning will not only enhance the student's understanding of why the child behaves as he does but also, equally important, it will help him to predict the future behavior of the child.

What Is Learning?

Stated most simply, learning is the establishment of a connection or association between a stimulus and a response, where, prior to learning, no such association existed. In the language of learning theory, the stimulus is called a *cue*. A cue is defined as any distinctive stimulus to which a response can be attached (33). Thus, a traffic light, the sight of a mother's face, or the sound of her voice—even internal stimuli such as thoughts, images, feelings, and bodily sensations—may all serve as cues to which responses can be learned.

Similarly, responses can be of many kinds. They can be motor acts like talking, walking, or hitting a baseball; physiological responses like sweating or changes in heart rate; or thoughts and images. It should be noted that internal responses like thinking and feeling can serve as either cues or responses. This means that any example of ongoing behavior, such as solving a problem or learning a poem, involves a complex, continuous series of cues and responses.

Let us consider a simple example of learning. In the now classic experiments of Pavlov, the great Russian physiologist, a dog was taught the *response of salivation* to the *cue of a buzzer*. This was accomplished by pairing the presentation of the sound of a buzzer with the presentation of food. Food is a stimulus that innately (i.e., without learning) produces the salivation response. Prior to learning, salivation does not ordinarily occur to the cue of a buzzer. However, as a result of repeated pairings of the buzzer sound with the food, the buzzer sound alone becomes capable of eliciting the salivation response. In other words, a connection or association is learned between the cue of the buzzer and the response of salivation, where prior to learning this connection was absent.

Let us consider a somewhat more complex case. Dorothy Marquis (32) has studied the infant's very early learning in relation to feeding. Working with ten infants between 2 and 9 days of age, she sounded a buzzer in their presence five seconds prior to each feeding. Within five days after the beginning of this training, eight of these infants began to exhibit sucking and mouth-opening responses as soon as they heard the buzzer. She also noted that the sound of the buzzer tended to reduce crying and general activity. Four control infants heard the sound of the buzzer but were not fed immediately afterward. These infants did not manifest sucking and mouth-opening behaviors in response to the buzzer. In short, the first group of infants learned to suck to the cue of a buzzer as a result of the pairing of the sound of the buzzer with feeding.

Let us consider an even more complicated example of learning. During the first half-year of life, the presentation of a bumblebee or long dagger would not elicit any consistent response in a child. However, during later childhood, the same stimuli are apt to produce fear and withdrawal in most children. We say that the child has learned to avoid these stimuli as a result of having experienced physical harm and pain from these things or having been warned about them.

Children learn to suck to the cue of a bottle, to cry when punishment is threatened, or to reply "four" when asked, "What is 2 times 2?" Although it may not seem obvious, the thoughts and images of the child can act as cues to which responses can be connected. If the child had an accident which frightened him and caused him to vomit, the image or thought of that accident at some later date could act as a cue which might elicit fear and vomiting.

Why Should a Child Learn Anything?

Why should a child learn anything? Does learning proceed spontaneously because of the innate constitution of living things, or are there

special conditions which promote and accelerate the learning process? In other words, are there special principles which determine when learning will occur and what will be learned?

There are, in fact, such special principles, although there are still many challenging problems to be solved. Two of the most basic principles of learning involve the concepts of *motivation* and *reinforcement*. These principles state that learning is more likely to occur (1) when the organism wants to obtain a certain goal (i.e., when he is motivated), and (2) when the response he makes results in acquisition of the goal (i.e., the response is rewarded or reinforced). That is, *a reinforcement satisfies a motive*. In the situation in which the baby learns to suck to the cue of a bottle, the source of motivation may be hunger and the reinforcement is the milk he receives.

The Nature of Reinforcement

When responses to a particular cue lead to certain consequences, they tend to be easily learned. When, however, the responses lead to other consequences, they are learned either with difficulty or not at all. Consequences which facilitate learning are called rewards or, more technically, reinforcements.

Let us approach this problem by considering a simple experiment of a sort long familiar to psychologists. A hungry animal is placed at the base of a Y-shaped maze. Food is placed at the left-hand end of the Y, nothing at the right-hand end. If the animal makes a left turn at the choice point in the maze, he will obtain food. If he turns right, he will not receive food. After repeated exposure to this situation, the animal will learn always to make the response of turning left when confronted with the visual cue of the choice point in the maze. In similar experiments, it has been found that animals and people will learn responses that lead to the satisfaction of thirst or hunger, to a lessening of physical pain, or to reductions in fear or anxiety.

What can be concluded from these experiments? It may be noted that, in every instance, the animal or person approached the situation in a state of intense stimulation—whether from the pangs of hunger or thirst, or from the stimulation of pain receptors, as in the case of electric shock or a severe burn—and made a response to reduce or eliminate the intense stimulation. *When a response leads to a reduction in intense stimulation, it tends to be learned*. Studies such as these have led some psychologists to conclude that a motivation is an increase in stimulation; and a reinforcement is a decrease in stimulation (9).

It is undoubtedly true that reduction in intense stimulation plays an

important role in many kinds of learning. However, an increasing amount of empirical evidence is accumulating which suggests that there are also many situations in which increases in stimulation, rather than decreases, are reinforcing and lead to learning (17, 22, 29). One investigator (27) has found that rats placed in darkness will press a lever more frequently if lever-pressing produces dim illumination than if it results in no increase in visual stimulation.

Harlow (11, 13), a psychologist at the University of Wisconsin, has found that well-fed, contented monkeys learned to solve complicated mechanical puzzles (involving an assortment of hooks, latches, and hinges) when their manipulative activities were followed merely by the opportunity to view parts of the laboratory (i.e., increased visual stimulation).

In studies of humans, Piaget (44) and others have commented on the enthusiastic way in which well-cared-for infants and young children will learn such developmental tasks as playing with a rattle, kicking a string, or standing up in the crib. All of these behaviors produce increased stimulation; yet they are easily learned. Apparently, in these cases, increases in stimulation facilitate rather than retard learning.

With humans, as with animals, there is evidence which suggests that, under some circumstances, an absence of stimulation is as disturbing as painfully intense stimulation (3). In one study conducted at McGill University, college students were paid twenty dollars a day to do nothing. They lay for 24 hours a day on a comfortable bed. The temperature was optimal and constant. Eyes, ears, and hands were shielded to minimize stimulus variation. While to busy readers preoccupied with classes and examinations this might appear to be a highly desirable state of affairs, the fact is that, under such conditions, few subjects in this experiment could endure more than two or three days. They developed a desire for stimulus variation that was almost overwhelming.

Increases Versus Decreases in Stimulation

How are we to reconcile these two sets of findings—or, indeed, is any reconciliation possible? Studies of learning under conditions of intense hunger, thirst, and pain indicate that organisms learn to do things that reduce stimulation. At the same time, when there is very little stimulation already present, as in the case of a bored child on a rainy afternoon, or an infant lying alone in his crib, responses leading to increased stimulation may be learned. Thus, reinforcements may sometimes be increases and sometimes decreases in stimulation.

It should be noted that many investigators are currently devoting a great deal of attention to such questions. Fortunately, however, we do not need to await the results of future research before proceeding with the job of understanding the child's learning process. As will be seen a little later in this chapter, both experimental research and clinical observation have yielded information on the kinds of reinforcements that will be effective in satisfying the child's motives, and will lead to effective learning, even though the fundamental characteristics of reinforcements are still unknown.

SUMMARY OF BASIC PRINCIPLES. In order for learning to occur there must be both a distinctive stimulus, or cue, and a response. In addition, learning is facilitated if there is some motivation—whether it be hunger, fear, or curiosity—and a reward or reinforcement. Some psychologists maintain that the latter statement may not always hold (i.e., there may be some kinds of learning that occur without motivation, without reward, or without either). It is our belief, however, that motives and rewards facilitate the development of most social learning. For this reason, it seems important to discuss the meaning of these terms in greater detail.

Sources of Motivation

The term motivation is a generic one that refers to the needs, goals, or desires that provoke the organism to action. More specifically, there are *innate* needs, or what are commonly termed *primary* needs. These include a variety of needs—food, water, warmth, oxygen—that require gratification if the organism is to survive.

A primary need is viewed as an internal state of the organism and not as a set of responses. That is, the child has to learn to eat or seek out food when he is hungry. It is true that nature sometimes helps in this process by providing the organism with a response that is appropriate to a certain need. Thus, the response of sucking is typically elicited when a nipple is placed in the infant's mouth. However, the infant learns to suck more efficiently with practice and, with age, learns how to drink from a glass and eat from a spoon.

Although needs sometimes impel the child to seek gratification, it should be noted that usually the organism must learn the response that is most effective in gratifying the need.

There are, of course, other needs besides primary ones. There is nothing innate about the need for social status, for security, for love from one's mother, for money, or for acceptance by one's friends. These needs are learned. In common with primary needs, however, learned needs may

serve to motivate future learning. Moreover, as with primary needs, the individual has to learn a set of behaviors to gratify the learned need. One of the common sources of tension and anxiety in human beings is the chronic presence of a learned need (e.g., love, dominance, social status) but no means of gratifying it. Students of personality commonly refer to learned needs as motives. A motive is defined as the learned desire for a specific goal state (e.g., money, love, acceptance), and the motive is usually labeled in terms of the manifest goal that is sought.

The reader may rightfully ask, "How can I tell that an individual has a motive for a specific goal?" At present, one of the best techniques available for inferring the presence of a motive involves the observation of the individual's behavior when he has been deprived of the goal. If a person has a motive for achieving a certain goal, then being deprived of the goal should have two behavioral consequences. First, his behavior should change following deprivation, and the new behavior should reflect signs of striving for the goal. Second, a new response that results in obtaining the goal should be learned more effectively after than before deprivation of the goal.

Let us illustrate this principle with the behavior of a 2-year-old. We usually assume that a child of this age has acquired a strong need for his mother; that is, he desires her presence, and perception of her is gratifying. We might also assume that the 2-year-old is not likely to have a burning need to contemplate a Picasso painting hanging on his living-room wall. We can test these assumptions by watching the child's behavior following the removal of mother and painting. We would expect that when the mother left the room the child might cry, thrash about, or search for the lost goal object, i.e., the mother. Such behavior following removal of the Picasso would indeed be surprising.

Let us further suppose that we want to teach the child a new response, such as opening a door. We would expect the child to learn this response much more efficiently if it led to a view of the mother rather than of the painting. Moreover, this response would be learned much faster if the child had been deprived of mother's presence for a half-hour than if this deprivation had lasted only a few minutes. On the other hand, if the response of opening the door led only to perception of the Picasso painting, we would expect no marked difference in the rapidity with which the response was learned. Although these examples may appear contrived, parents make inferences about motives every time their child shows a sudden and abrupt change in behavior—a cry, for example, or increased restlessness. At such times, the mother instinctively asks, "What can he

want?" and she searches for some object that she thinks will satisfy the child.

To summarize, then, we infer the presence of a motive for a goal if (1) deprivation of the goal leads to changes in behavior, and (2) we can use the goal as "bait" or reward for the learning of new behavior.

Sources of Reward

Reward or reinforcement is defined in terms of classes of events that facilitate learning. Typically, if a response leads to an event that gratifies a need, that event (called a reward) strengthens the response. Thus, if the cries of a hungry child result in the immediate administration of food, we assume that the response of crying is strengthened because it led to the rewarding goal of food.

Food, water, sleep, and warmth are called primary rewards because they satisfy primary needs. However, there is evidence to suggest that certain kinds of stimulation are innately pleasant or satisfying, although they are not necessary to the survival of the organism. Stimulation of the genital area and tactile contact in infancy are two such classes of pleasant stimulation. These stimuli are regarded as innate or unlearned rewards because any response that is followed by this class of stimulation will be strengthened. Therefore, there may be primary rewards that are not directly related to primary needs (i.e., needs involved in the maintenance of life).

Just as there are learned needs or motives (e.g., fame, approval, money), there are also learned rewards. A transistor radio has no reward value for a baby or for an Amazonian headhunter. The reward value of this object has to be learned. In the case of the motive for academic achievement, the reward may be the acquisition of a good report card. Similarly, in the case of the child's love for the mother, the learned reward will be her presence. A learned reward is defined as a class of stimuli that has acquired positive value because it gratifies a motive. Learned rewards act as incentives, and any response that leads to the acquisition of a learned reward will itself be strengthened.

If a class of stimuli is to acquire reward value, it must be associated with events that have already become rewards. Interesting examples of how money may acquire reward value, even with animals, are cited by Wolfe (54) and Cowles (7). For convenience they used poker chips instead of money, but the principle is identical. The results of their experiments have been summarized by Miller.

In order to give reward value to the tokens (poker chips) Cowles first trained hungry chimpanzees to insert them into a vending machine which delivered a raisin with each token inserted. As a preliminary test, and as a further means of establishing the reward value, he repeated Wolfe's procedure of requiring a chimpanzee to work for the chip by pulling a handle against a weight. First the animals were allowed to change the chip immediately for a raisin, then by stages were forced to accumulate 20 chips before they could spend them.

In order to determine whether or not the poker chips could serve as a learned reward, he took the animals into another room where they were confronted with two boxes. If they opened the one to the left they found a token, if they opened the one to the right they found nothing. They quickly learned to open the box on the left in spite of the fact that they were not allowed to exchange the tokens for food until the end of the day's session. The next day they were taught to select the box on the right.

In later experiments they were taught a variety of more complicated habits. In some of these experiments the possible innate reward value of the token was controlled by giving the animal the token that had been associated with food if he performed the correct response, and a different colored token, that the animal had learned could not be exchanged for food, if he performed the incorrect response. The learning of the correct response under these circumstances shows that the reward value of the token depended on its previous association with the primary reward of receiving food when hungry (34, 454).

Money acquires its reward value for children in much the same way it did with these chimpanzees. Only after a child has discovered that his father's nickels and dimes may be exchanged for such primary delights as ice-cream cones, candy bars, and bubble gum does money itself acquire reward value. It might also be observed that it is probably no harder to teach the chimpanzee to accumulate twenty chips before spending them than it is to teach a child to hold on to his dimes and nickels until he has enough "to buy something he really wants."

Once money has acquired reward value, it may be successfully employed as reinforcement, not only for responses such as opening boxes, but also for other, perhaps more useful, ones, such as making beds, sweeping sidewalks, or delivering newspapers. It may even serve as some encouragement toward "being a good boy." In the case of adults, it keeps innumerable people busy building cars, walking tightropes, and selling shoes.

Other examples of learned reward in our culture are numerous. Medals, cups, high grades in school, pats on the back, use of the family car, and promotions all may have reward value. Of course, a particular object cannot function as a reward unless there is a motive operating at the

moment that will be satisfied by receipt of the object. This is obvious in the case of primary rewards. No one thinks of offering food to a thirsty individual, or sexual objects to one who is hungry, in order to reward him.

This principle is not always apparent in the case of learned rewards. For example, we often assume that certain objects are intrinsically rewarding for all children simply because they serve as rewards for most children. However, since children have different kinds of learning experiences, no two of them will have exactly the same motives. Consequently, they will not always be equally satisfied by the same rewards. For example, while praise may well serve as a reward for children who are in need of social approval, it is not likely to serve well for a boy whose overwhelming need is to convince himself and others that he's a "tough guy" and not a "mamma's boy." In the same way, one can hardly expect a rich boy who needs love and acceptance to learn something by offering him money as a reward. It is impossible to get an adolescent farm boy, who has no curiosity about what is going on in the next county, to join the Navy by promising him the delights of travel and adventure. At the level of cultures, it is probably unreasonable to expect that one could convert a starving Indian or Chinese to the American way of life by pointing out the blessings of freedom of speech, religion, and the press. To be rewarding, an object must always be able to serve, at least to some degree, a need or motive operating at the moment.

The four basic factors in learning have now been defined. In order for most, but perhaps not all, learning to occur there must be a cue, a response, a need or motive, and a reward. However, a number of additional principles of learning must be mastered before we can analyze in detail the complexities of learned behavior.

The Gradient of Reinforcement

This principle states that the more immediately a reward follows the response, the stronger will be the association between the cue and the response (21).

Let us assume that we want to teach a child to look both ways before crossing the street. In accordance with the principle just discussed, we should reward the response of looking as soon as it occurs (gradient of reinforcement). If such a procedure is followed, the child's chances of learning to make the correct response will be much greater than if we delay in giving the reward until after the child is through playing and has come into the house.

What About New Situations? The Principle of Generalization

When a hungry child has learned to go to the refrigerator for a snack in his own home, it is likely that if he becomes hungry in his grandmother's home, he will also go to the refrigerator. Similarly, when a child has been trained to avoid a hot radiator or stove in his home, he will, fortunately, also tend to avoid other radiators or stoves in other homes. How does this happen? Since the cues in the two homes are not identical, why doesn't he have to learn to make the response all over again in this new situation? The answer to this question requires an additional principle, that of stimulus generalization. This principle states that when a response has been learned to one cue or stimulus, it is likely to occur to similar stimuli. The greater the degree of similarity between the original stimuli and those in the new situation, the greater the likelihood that the response will occur.

What Determines Similarity Among Stimuli?

In the case of objects, the importance of color, size, and shape is obvious. Thus, if a child has learned initially to grasp for a blue-tinted nursing bottle, he is more likely to reach for a purple one than for a red one. After language has been acquired, however, the verbal labels applied to things are frequently the primary determinants of similarity. In other words, what we *call* an object constitutes the most important basis for generalization.

For the adult, the word *dog* refers to everything from a white Afghan to a toy Pekingese. However, in terms of the objective physical quality of the stimulus, a cat is more similar to the toy Pekingese than to the white Afghan. If a response learned to a collie were generalized only to dogs that were physically similar to it, the child would be very limited in the range of animals to which he would respond as he did to the collie. It is quite unlikely that a response learned to a collie would generalize to the toy Pekingese solely on the basis of physical similarity. However, if his parents label the collie as a "dog," the word *dog* becomes as much a part of the total stimulus situation as the physical aspects of the animal. Thus, in the future, the child may come to apply the responses he has learned to his pet collie (e.g., patting the animal, expecting him to bark, etc.), not only to other physically similar animals, but also to all animals he labels *dog*. The term *learned* or *mediated generalization* is applied to those cases in which the basis for generalization involves a language label (e.g., *dog*).

As the child approaches school age, language becomes his most important source of cues, and objects with similar labels (similar meaning)

form the basis for many generalizations (46). Therefore, if the child has learned the response of respecting older people, he will be likely to generalize this response to all human beings whom he labels as "older," regardless of their sex, height, weight, color, or physique. As we shall see, this principle of mediated generalization is very critical in development and will be frequently referred to in later discussions.

As already implied, generalization is a very useful and important phenomenon, since no two stimulus situations are ever quite the same. Unless people generalized, they could seldom profit from past experiences. Of course, generalization can have its negative side also. For example, if the child has learned to respond to a particular teacher with resentment because she had been cruel and rejecting toward him, he may generalize this response to other teachers, whether or not resentment of them is justified.

Initially, generalization is likely to be extensive. The child who has learned to attach the label "dog" to the family pet is apt to extend this label to all four-footed animals he meets. Thus, the first cow or horse he encounters is likely to be called a dog. Gradually, however, the extent of the generalization will decrease until finally it is (correctly) limited only to dogs. This learned correction to overgeneralization is called *discrimination* (33), and is based on the elimination, or extinction, of incorrectly generalized responses.

Extinction

The fact that a response is learned does not mean that it will always remain strong. A child may learn to reach for a bottle but will soon stop reaching if he doesn't obtain any food from it. Under these conditions, we say that the response is extinguished. As Miller and Dollard phrase it, reinforcement is "... essential to the maintenance of the habit. When a learned response is repeated without reinforcement, the strength of the tendency to perform that response undergoes a progressive decrease. This decrement is called "... extinction" (33). In other words, if a learned response is not rewarded, it may eventually be eliminated or extinguished.

However, lack of reward is not the only condition that can result in a decreased likelihood of the occurrence of a response. This statement introduces us to the notion of what is called a *habit family hierarchy*.

Response Hierarchy

This phrase refers to the fact that in most new situations the child is capable of making a variety of responses. Each of these is of different

strength (i.e., has a different probability of occurring). The relative strength of each of these responses determines the response hierarchy. With age, some responses lose in strength and others gain. Thus, response hierarchies change with age. For example, a child learns to reach for a bottle and suck the nipple because these responses are rewarded. These behaviors, therefore, are most likely to occur when the child is hungry. However, around 2 years of age or earlier, parents usually put pressure on the child to give up the infantile habit of nursing from a bottle and encourage him to drink from a glass when he is hungry. The child may begin to anticipate parental displeasure or punishment when he thinks of sucking from the bottle, and a new response, the tendency to drink from a glass, begins to compete with the older one of asking for a bottle. If the motive to avoid parental displeasure becomes strong enough, the child will inhibit the old response and begin drinking from the glass. When alternative responses are available to gratify a need or motive (e.g., asking for a glass or a bottle of milk), the one that actually occurs will be the one with the greatest strength and the least amount of fear or anxiety associated with it. In discussing hierarchies of responses, psychologists use three terms: *innate*, *initial*, and *resultant response hierarchies*.

Perhaps these terms can best be introduced by an example. Let us take the case of the young child who is to be toilet-trained. Before training begins, the stimulus of a full bladder leads to prompt urination, with little regard for the social amenities. It may, of course, lead to other responses—perhaps squirming or general restlessness. It almost certainly will not lead to a trip to the bathroom. As Miller and Dollard (33) point out, there are various responses available prior to training, and each has a different probability of occurrence. The ordering of these responses according to their likelihood of occurrence is called the *initial hierarchy* of responses. After successful toilet training, however, this order of response will be changed. The stimulus of a full bladder now leads to a trip to the bathroom, rather than to immediate urination. The new hierarchy produced by learning may be called the *resultant hierarchy*. Usually the order of responses in an initial hierarchy is the result of previous learning in similar situations. In those cases in which the order of responses is primarily determined, not by learning, but by hereditary or constitutional factors, the initial hierarchy may be called the *innate hierarchy* (33). As we shall see in the following chapter, some sounds (e.g., *i* as in *bit*) occupy a higher position in the infant's innate hierarchy for speech than others (e.g., *b*). Thus, it is easier for the infant to learn to respond to

various cues (for example, the sight of a mother's face or the approach of its bottle) with certain sounds than with others.

The changed order of responses between the initial and the resultant hierarchies is evidence that learning has occurred. It is an indication that some of the responses in the initial hierarchy have been rewarded more than others and, consequently, have become stronger and more likely to occur.

The concept of hierarchy of response has numerous practical implications. We shall give but one example here. A child of 5 may have learned that the most frequently rewarded method of attracting his parents' attention is by asking questions. This response, therefore, becomes high in his hierarchy of responses in this type of situation. However, let us assume that his parents suddenly become too busy to answer his questions. They may then cease to reward this question-asking response. As a result, this learned response may become weaker and fall to a lower position in the child's response hierarchy. Older responses that have been rewarded earlier in life, such as crying or temper tantrums, may then become the strongest in the response hierarchy and the most likely to occur. A return to older, more primitive forms of responding is called *regression*.

Anticipatory Responses

The reader may recall that, in Dorothy Marquis' experiment on infant feeding, the response of sucking became attached to the cue of a buzzer, since the sound of the buzzer was always followed by the presentation of food. Originally, the sucking response would not occur until the food was actually presented. However, as learning proceeded, the sucking response began to occur as soon as the buzzer sounded and before the infant received any food. What happened in the course of the experiment was that the responses of sucking and cessation of crying began to appear earlier in the response sequence—to become anticipatory.

Anticipatory responses are common in learning. A child learning to ride a bicycle originally may lean to one side only after almost falling on the other. Gradually, however, he will learn to lean slightly in an opposite direction as soon as the bicycle begins to fall. In other words, the response of corrective leaning will become anticipatory. Some anticipatory responses are not so useful, however, especially those based on anticipation of pain or anxiety. Let us take the example of a child learning to dive. Originally, he will close his eyes only after he has been hurt as he strikes the water. Gradually, however, this response will become more and more anticipatory until, as one diving instructor put it, the child goes to the

end of the board, closes his eyes, and hopes! Thus, responses associated in time with reward or pain may move forward in the behavior sequence (i.e., become anticipatory), and affect the efficiency of future behavior.

TYPES OF NEEDS AND MOTIVES

The neonate's repertoire of needs is limited and includes the primary needs of hunger, thirst, avoidance of pain, physical contact, stimulation, warmth, defecation, and urination. He must go on to develop the many learned motives that play such a dominant role in his later life. The principles outlined above not only account for the learning of motor responses and ideas, but also form the basis for understanding the acquisition of learned needs or motives.

For the most part, learning theory is not helpful in suggesting what specific motives are likely to be of greatest importance in the personality development of children in this culture. However, tentative formulations of the major determinants of child and adolescent behavior may be derived from theories of personality development (such as psychoanalysis), from empirical research, and from clinical observations of children.

In approaching this topic, it is important to recognize that children and adults are not always aware of all their motives. When a child is not able to say why he "did what he did" (i.e., he is completely unaware of his motives), we say that his motives were unconscious. For example, the child who protests most loudly the love for his mother may, in fact, be concealing unconscious motives of hostility. It is as though his protestations of love have protected him from the realization of his socially unacceptable, hostile motives. Motives usually become unconscious when they involve thoughts and actions that are inconsistent with the individual's concept of himself and the way he "ought to be." Awareness of such motives would be likely to arouse anxiety, guilt, and self-blame.

A Useful Set of Motives

The following learned needs, or motives, appear to be of crucial importance in the child's personality development. In most cases, it is difficult to spell out the details of how these motives have been learned. While some, like anxiety, have been the subject of extensive experimental and clinical investigation, many others have thus far proved difficult to study rigorously.

LOVE. This motive has two components which are often difficult to separate—the desires for affection and nurturance from others. The motive for affection is the desire for physical contact with another person

in the form of embracing, kissing, and cuddling. The desire for nurturance is the desire for help, protection, assistance, and support from another person or group.

HOSTILITY. This motive refers to the desire to hurt, injure, destroy, or cause pain to an individual or object.

DOMINANCE. This is the desire to influence or control others and to resist the demands of other people.

SEX. In its most restricted sense, this need refers to the desire for the pleasurable sensations resulting from stimulation of the genital area. The fact that such stimulation is pleasant derives from the biological nature of man. However, as the individual matures, sexual stimulation and gratification become attached to a variety of situations and people, and several learned motives, such as a desire for sexual literature and movies or curiosity about the genitals, may develop.

AFFILIATION. This motive is the desire to form friendships and associations with other people.

MASTERY. This motive refers to the child's desire to develop skills which allow him to control aspects of his environment. In the 1- and 2-year-old this motive is manifested in the child's strenuous attempts to stand and to walk; in the careful building of block towers; in his insistence on feeding himself. In school-age children, the desire for mastery involves the need to feel competent at more adult tasks (i.e., perfection of intellectual skills; learning how to interact with people; curiosity about the world). A large part of the individual's self-esteem is based on gratification of mastery motives. It is difficult to regard oneself in a positive light (i.e., to have adequate self-esteem) if one cannot master those tasks that are regarded as requisites for effective participation in society.

With age, the desire for mastery becomes entangled with other motives (e.g., the need for social recognition), and it is not valid to assume that the 2-year-old who seems intensely motivated to master walking will also be highly motivated in school subjects.

RECOGNITION. Recognition motivation refers to the desire to obtain praise and attention from others; to obtain status and prestige with peer and authority figures.

RATIONALITY. This motive refers to the desire to communicate with others in a meaningful and coherent fashion; the need to feel that one's behavior and thoughts are rational and logical. Although this motive is weak in the 2-year-old, its strength increases as the child prepares for school entrance.

This list, although incomplete, includes some of the major motives that,

in the opinion of many psychologists, direct much of the child's behavior. In attempting to describe an individual's motive system, it is important to specify the situations in which a motive operates and the types of situations or people that are likely to arouse the motive. Thus, it is of little value to say that a child has a hostile motive, unless one can specify the classes of people to whom he is likely to direct his aggression (e.g., mother, father, brother, or peer), and the kinds of situations that may arouse hostile feelings (e.g., when frustrated because of inability to do an arithmetic problem; competition with a brother; or being prevented from wearing certain clothes).

Anxiety

Anxiety is of great importance as a determinant of human behavior, for it is most likely to elicit behaviors that conflict with the satisfaction of other motives. A child wants to jump off a diving board like the other children, but he is afraid. He would like to tell his parents how angry their "unreasonable" demands make him, but he fears retribution. Life would be much easier for him if he could admit to himself the way he sometimes secretly feels about his mother, father, or brother, but even thinking such thoughts would produce too much anxiety. Therefore, he learns to avoid these acts and thoughts because this avoidance is rewarding (i.e., it leads to a reduction in the anxiety aroused by the thoughts and behaviors).

How does anxiety begin? What produces the feeling of acute discomfort, the pounding heart and rapid pulse, the sinking feeling in the stomach, the perspiration, the trembling, the exaggerated startle, the dryness of the throat and mouth, and other indicators of anxiety? Objectively, as these illustrations show, the physiological components of anxiety are not learned but are part of the constitutional make-up of the child. What the child learns is an association between a person, object, or situation, and the feelings, images, and physiological reactions that characterize anxiety. It is the *arousal* of anxiety that is learned. Thus, a 2-year-old might learn to be afraid of large dogs because his mother becomes hysterical whenever she sees one. Once the connection between the sight of a dog and anxiety has been learned, the child will attempt to avoid dogs. In this way a motive to avoid large dogs can be learned.

"Fear⁴ is called learnable because it can be learned as a response to

⁴ We will use the terms fear and anxiety synonymously in the present discussion. Some psychologists suggest that fear is an innate response to certain stimulus situations (e.g., pain, sudden change in a stimulus), and that anxiety is based on the fear response. In order to simplify this section these two terms will be used interchangeably.

previously neutral cues; it is called a *drive* because it can motivate the learning and performance of new responses in the same way as hunger, thirst, or other drives" (34).

Moreover, since anxiety is a learned response, it follows the same principles of learning, such as extinction and generalization, that apply to other behaviors. For example, if the child originally has learned to be afraid of a specific dog, he might generalize this reaction in terms of all objects he has labeled "dog" or "animal." This might include cats, horses, cows, sheep, and even chickens.

Pain as a Determinant of Anxiety

As we pointed out earlier, if learning is to take place—if a new bond between a cue and a response is to be formed—we must somehow find a way of eliciting the response in the first place. In the opinion of a number of psychologists, one class of stimuli that innately produces fear or anxiety is pain (19, 34). In such cases, it is not hard to see how anxiety gets started, even in infancy. Infants often experience pain, no matter how solicitous their mothers are. The infant may be stuck with a pin, suffer the acute anguish of colic, or become intensely hungry. Experimental evidence tends to support the common observation that hunger pangs rise to greater heights in infants than in adults (51). As the infant continues to experience an association between the early, mild feelings of hunger and the more painful later feelings, he will soon learn to anticipate the painful feelings during the early stages of hunger. This anticipation of pain, we are assuming, leads to anxiety. Thus, by allowing infants to become intensely hungry before feeding them, mothers may establish the conditions that lead to feelings of anxiety associated with the experience of hunger. Similarly, a careless mother who accidentally sticks her infant with a pin when she changes his diaper, sets up the conditions that permit the child to anticipate pain and, therefore, anxiety, when confronted again with the stimulus of the mother preparing a diaper.

Other Determinants of Anxiety

It is probable that stimuli other than pain may innately produce anxiety, though all too little is known at this point about their nature. Some psychologists suggest that a sudden increase or change in stimulation may produce anxiety.

Hebb (14) believes that anxiety (or fear) is aroused when a stimulus pattern contains both familiar and unfamiliar elements. For example, he found that chimpanzees show fear reactions when presented with a

plaster cast of a chimpanzee head. The head is a familiar stimulus element, but the absence of the attached body makes this stimulus incongruous and the animal behaves as if he were afraid. If Hebb's hypothesis is valid, a completely novel stimulus will elicit less fear than one which has some familiar elements embedded in a generally unfamiliar context. That is, as children mature they learn certain rules about the world. They build up definite images or expectations about the environment. They expect that animals will have four feet; birds will have wings; people will have two arms and two eyes; snow will be white, etc. If a child's expectations of what he will see or hear, smell or feel are seriously jarred or disconfirmed (i.e., his expectations are not borne out), he may become anxious.

For example, if a mother should suddenly approach her 8-month-old child while holding a writhing snake rather than a bottle, the child may begin to cry. This anxiety reaction is probably attributable not to an anticipation of being hurt by the snake, but to the presence of an unexpected stimulus in the position of a familiar one—to a psychological surprise. It is to be noted that this kind of anxiety is not likely to occur until the organism has already built up some expectations about the environment. Moreover, this type of anxiety is not likely to occur during the early days of life.

Finally, some psychologists believe that certain classes of stimuli, related neither to pain nor surprise, are capable of producing anxiety—a kind of innate and unlearned connection between a stimulus and the response of anxiety. This possibility has been supported mainly in studies with animals. For example, Tinbergen (52) has summarized the reactions of ducks and geese raised in isolation to the visual stimulus configurations shown in Fig. 21. When this silhouette was moved on an overhead wire above the birds' pen in one direction (so that it somewhat resembled a

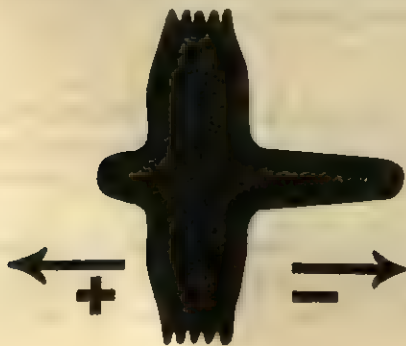


FIG. 21. Silhouette that frightened inexperienced birds raised in captivity when it was moved overhead to the left but did not when moved to the right. (From Tinbergen, 1948, 60, 34. With permission of *The Wilson Bulletin*.)

hawk), it aroused panic-like avoidant responses. However, when it was moved in the opposite direction (so that it somewhat resembled a long-necked goose), it did not provoke avoidant behavior. Since these birds had never had any experience with hawks or adult geese, the avoidant response (presumably based on fear) to a particular pattern moving in a particular direction appears to be innate.⁵

Lorenz (30) provides other examples of animals' flight (and presumably fear) responses to very specific visual stimulus patterns. Since these responses can be elicited by such stimuli (or by artificially isolated but relevant portions of the total stimulus patterns) in the absence of prior experience with the stimuli, Lorenz regards these "key" stimuli as innately capable of eliciting avoidant behavior. It may be tempting to extend such findings to children and reason, by analogy, that some of the apparently spontaneous fears of infants may, as with animals, require little or no learning. Whether, or to what extent, this is true, is unknown.

In summary, there are at least four kinds of stimulus situations that may have an *innate* capacity to elicit fear and avoidant responses: pain, sudden change in stimulation, unexpected stimuli, and special "key" stimuli. The latter category has *not* been demonstrated in human beings, and the third category (unexpected stimuli) requires some degree of perceptual learning before it can be an effective cause of fear. It seems clear, however, that regardless of the original stimuli that may produce anxiety, the major sources of adult anxiety—and the ones that are most likely to be crippling to an individual's attempts to adjust to his environment—are learned. Some of these classes of learned anxiety are discussed later in the chapter.

An Example of Learned Anxiety

Let us assume that an infant's older brother, understandably jealous of the attention that this pint-sized intruder into the family circle is receiving, walks up to the crib in which the baby is playing and jabs him with a pin. If the baby's visual perception is sufficiently mature, the visual stimuli (cues) presented by his brother will be discriminatively different from those of his mother, father, and other relatives. If so, the chances are that future appearances of his older brother's face at the side of the crib will provoke an anticipation of pain and, therefore, the feeling of anxiety.

The learning paradigm in this case may be analyzed as follows. A

⁵ Some recent investigations have failed to confirm this finding, and the reader should regard Tinbergen's report with some caution (McNiven, M. A. "Social-releaser mechanisms" in birds—a controlled replication of Tinbergen's study. *Psychol. Record*, 1960, 10, 256-265.)

stimulus (pain) which is innately capable of arousing the response of fear is paired with a neutral stimulus (the sight of the older brother's face). As a result of this pairing, the sight of the older brother's face alone becomes capable of producing anxiety in the future.

Experimental evidence of this kind of learning comes from a number of classic experiments on conditioning, such as one by Watson and Raynor (53). They found that an infant could be taught to fear a white rat not feared previously if a frighteningly loud noise was produced (the striking of a steel bar) every time the infant reached for the rat. After several such experiences, the infant displayed fear when the rat was presented alone.

Some psychologists feel that the learning of a fear reaction does not necessarily involve any distinct reward. It is clear, however, that anxiety, as a response, is subject to extinction, discrimination, and generalization in the same fashion as other behaviors.

Some Major Sources of Anxiety

While the potential for becoming anxious exists within the physiology of the individual, the types of situations to which anxiety may become attached are a function of a child's learning experiences. It is important to be aware of these differential learning situations, for use of the term *anxiety* alone, without further stipulation of "anxiety over what," is not helpful in understanding or predicting behavior.

Basically, anxiety is an anticipatory internal response—an anticipation of an unpleasant event. The cues that become capable of eliciting anxiety are those that have been associated on previous occasions with an event that led to a feeling of fear. Later reenactment of the event—usually in thinking—leads to an anticipation of the unpleasant feeling and to anxiety. Thus, the anxiety response is elicited when the child anticipates some unpleasant future event, such as being physically hurt, deserted, punished, or socially rejected.

As with the motives discussed above, the following list of important anxiety sources is not intended to be exhaustive.

ANXIETY OVER POTENTIAL PHYSICAL HARM. This class of anxiety results from the child's associating certain stimuli with possible pain and danger to his physical well-being (e.g., high places, dangerous animals, fire, deep water). The child may have experienced the pain characteristic of these events or may have been told that these situations lead to pain and physical harm.

ANXIETY OVER LOSS OF LOVE. Anxiety over loss of love stems from the

anticipation that a source of affection, nurturance, or acceptance (such as mother's love or the friendship of a peer) will be withdrawn or lost. The learning of this class of anxiety may or may not be solely based on the anticipation of pain following loss of a source of love or support. Although this is a common source of anxiety in the child, it is not yet possible to explain the details of its development.

GUILT. Guilt is a special state of anxiety that does not usually appear until about age 4, and is elicited by the anticipation of violating a rule or standard, or following the violation of an internalized standard or value. In the older child, guilt is characterized by feelings of self-derogation and unworthiness.

ANXIETY OVER INABILITY TO MASTER THE ENVIRONMENT. This anxiety occurs when the individual feels that he is not able to handle the problems and stresses that the environment poses. It is related to, but not identical with, the common term *feelings of inferiority*.

DEVIATION FROM CULTURAL EXPECTATIONS—ANXIETY OVER A DEVIANT SELF-CONCEPT. Every culture has an unwritten list of valued traits that it expects its members to possess. While these characteristics differ with the sex, social class, and ethnic background of the child, they serve, in large measure, to define the kind of person the child feels he should be. The individual's concept of himself is, to a large extent, a function of how closely his characteristics approximate the valued traits. When the individual perceives a great discrepancy between his own skills, traits, and temperamental qualities, and those he feels he *should* possess, anxiety is generated. The intensity of the anxiety is related to the degree to which the person perceives himself as deviating from his own and the culture's ideal standards. This source of anxiety is critical in the sex-role development of the child and in the development of self-esteem. These concepts will be discussed in later chapters.

LEARNED NEEDS AS THE BASIS FOR OTHER LEARNED NEEDS

The learning process is like a rapidly expanding building. Once a previously neutral stimulus has acquired the ability to arouse anxiety, for example, it may serve as the basis for learning other anxieties. If a little boy has learned to fear his father, he may later come to fear and withdraw from objects associated with the father, such as the father's friends. Hence, a learned anxiety, such as fear of the father, may serve as a basis not only for learning new instrumental acts but also for acquiring new sources of anxiety.

A child's desire for his mother's love may originally have developed because of her role in meeting his primary needs through such acts as providing warm bottles, rocking and cuddling, changing diapers, removing safety pins, and adding blankets on cold nights. Once developed, however, this motive (i.e., desire for maternal love) may serve as part of the basis for learning further complex motives. For example, if the mother gives love only if the child is being orderly and conscientious, the child may develop a need for orderliness and conscientiousness that will be manifested even when the mother is not around. He may even learn to do many complex acts, such as always putting his toys away carefully, keeping his clothes clean, washing his hands frequently, and always doing what he is told, in order to satisfy the motives that are based on his need for maternal affection.

Finally, many motives of the adolescent and adult are derived from a combination of several, more basic motives. The desire for money in our culture, for example, may be based on the need for social recognition (i.e., gained through ostentatious display of material goods), mastery (i.e., the culture often assesses a man's competence by the amount of money he makes), dominance (i.e., possession of money allows an individual to dominate others).

The kinds of motives that children learn, the ages at which these motives are likely to emerge, and the circumstances which lead to their emergence, are some of the central concerns of this book.

HEREDITY AND LEARNED MOTIVATION

In our discussion of primary needs in the neonate, we mentioned that some primary needs, such as hunger, may become stronger in infants than in adults. As we shall see later, there are others, such as sex, which become more insistent as development proceeds. It also appears that there are individual differences in the strength and in the periodicity of these needs. Such differences which are probably due, in part, to hereditary factors, may affect learning. In this sense, it may be said that differences in heredity may influence the learning process in the young child. For example, experimental evidence suggests that individuals differ in their susceptibility to pain. A child who is more susceptible to pain than another is more likely to develop strong anxiety and to attach anxiety to more cues than a less susceptible child. A child whose hunger drive is capable of rising to greater heights than another's is likely to learn more ways of behaving and more social needs that center around reducing

hunger, and to learn them more strongly, than is the child with weaker drive.

There are, of course, certain ways in which heredity can affect the development of learned needs and acts besides producing individual differences in the strength of primary needs. The obvious fact that heredity determines whether a child is a boy or a girl means that heredity, at least indirectly, influences the way he will be treated, the expectations his parents will have for him, and, consequently, the motives and skills he will learn.

Since heredity plays a role in determining an individual's intellectual potential, it can strongly influence the kinds of motives and responses for which he will be rewarded by society. The child who is below average in intelligence is not likely to be rewarded for trying to be a good student or for wanting to become a doctor, or lawyer, or a teacher. Nor is he likely to be rewarded for efforts to write for the school paper, or to play for the chess club, or to orate for the debating society. He is more likely to gain acceptance as a follower than as a leader.

Heredity can affect physical strength, reactivity of the autonomic nervous system, and susceptibility to disease. It can even help to determine whether an individual meets our society's current notions about beauty or ugliness of appearance. All these factors may significantly influence the future development of the individual's learned needs and characteristic ways of responding.

ENVIRONMENTAL INFLUENCES ON LEARNED MOTIVATION

Differences among children in the strength and occurrence of various motives are, in part, the result of differences in the value systems of the child's parents and friends, and, consequently, of the behavior they reward. These, in turn, are influenced by broader factors, such as the child's social class, his ethnic and religious affiliations, and his ordinal position in the family. In one family, for example, a child's aggressive behavior with his peers may lead to approval: "He's a regular boy," we hear some admiring parents say, "always into something." Other parents may complain, "That kid is always into something, he's going to drive me crazy. I caught him with a set of tools from his father's workshop this afternoon, and had to spank him and send him to bed." Negro children in the rural South still tend to be rewarded for submissive responses to figures of authority and to be punished severely for aggressive responses. With white children, particularly boys, the reverse is likely to be the case

(40). Americans generally are rewarded for assertive behavior. The Zuni Indian, on the other hand, is genuinely shocked at such behavior and certainly does not reward it in his children (2). In pioneer America, where climate and topography combined to frustrate man in the satisfaction of his primary needs, the development of aggressive behavior was encouraged. In some tropical countries, where food and shelter present few problems, aggressive behavior is little rewarded, at least in part, because it is not so necessary for the satisfaction of primary needs (20). Environmental factors such as these, and their influences on the individual's psychological development, will be emphasized throughout the book.

REFERENCES AND ADDITIONAL READING

1. Allport, G. *Personality: a psychological interpretation*. New York: Holt, 1937.
2. Benedict, R. *Patterns of culture*. New York: Penguin, 1946.
3. Bexton, W. E., Heron, W., & Scott, T. H. Effects of decreased variation in the sensory environment. *Canad. J. Psychol.*, 1954, 8, 70-76.
4. Butler, R. A. Discrimination learning by rhesus monkeys to visual-exploration motivation. *J. comp. physiol. Psychol.*, 1953, 46, 95-98.
5. Butler, R. A. Discrimination learning by rhesus monkeys to auditory incentives. *J. comp. physiol. Psychol.*, 1957, 50, 239-241.
6. Cofer, N. Motivation. *Annual Review of Psychology*. Vol. 10. Palo Alto, Calif.: Annual Reviews, 1959, 173-202.
7. Cowles, J. T. Food tokens as incentives for learning by chimpanzees. *Comp. Psychol. Monogr.*, 1937, 14, No. 5.
8. Davis, H. V., Sears, R. R., Miller, H. C., & Brodbeck, A. J. Effects of cup, bottle and breast feeding on oral activities of newborn infants. *Pediatrics*, 1948, 3, 549-558.
9. Dollard, J., & Miller, N. E. *Personality and psychotherapy: an analysis in terms of learning, thinking and culture*. New York: McGraw-Hill, 1950.
10. Freud, S. *The problem of anxiety*. New York: Norton, 1936.
11. Harlow, H. F. Learning and satiation of response in intrinsically motivated complex puzzle performance by monkeys. *J. comp. physiol. Psychol.*, 1950, 43, 289-294.
12. Harlow, H. F., Harlow, M. K., & Meyer, D. R. Learning motivated by a manipulation drive. *J. exp. Psychol.*, 1950, 40, 228-234.
13. Harlow, H. F. Motivation as a factor in the acquisition of new responses. In *Current theory and research in motivation: a symposium*. Lincoln: Univer. of Nebraska Press, 1953, 24-49.
14. Hebb, D. O. On the nature of fear. *Psychol. Rev.*, 1946, 53, 259-276.
15. Hebb, D. O. *The organization of behavior*. New York: Wiley, 1949.
16. Hebb, D. O., & Thompson, W. R. The social significance of animal studies. In G. Lindzey, *Handbook of social psychology*. Vol. 1. Cambridge, Mass.: Addison-Wesley, 1954.

17. Hebb, D. O. Drives and the CNS (conceptual nervous system). *Psychol. Rev.*, 1955, 62, 243-254.
18. Hebb, D. O. A neuropsychological theory. In S. Koch (Ed.), *Psychology: A study of a science*. Vol. 1. *Sensory, perceptual, physiological formulations*. New York: McGraw-Hill, 1959, 622-643.
19. Hilgard, E. R. *Theories of learning*. New York: Appleton-Century, 1948.
20. Honigman, J. J. *Culture and personality*. New York: Harper, 1954.
21. Hull, C. L. *Principles of behavior: an introduction to behavior theory*. New York: Appleton-Century, 1943.
22. Hunt, J. McV. Experience in the development of motivation: some reinterpretations. *Child Developm.*, in press.
23. Jersild, A. T. *Child psychology*. New York: Prentice-Hall, 1947.
24. Jones, E. *The life and work of Sigmund Freud*. New York: Basic Books, 1953.
25. Jones, H. E., & Jones, M. C. Fear. *Childh. Educ.*, 1928, 5, 136-143.
26. Kagan, J., & Berkun, M. The reward value of running activity. *J. comp. physiol. Psychol.*, 1954, 47, 108.
27. Kish, G. B. A demonstration of learning when the onset of illumination is used as a reinforcing stimulus. *Amer. Psychologist*, 1954, 9, 406 (Abstract).
28. Lacey, J. I., & Smith, R. Conditioning and generalization of unconscious anxiety. *Science*, 1954, 120, 1045-1052.
29. Leuba, C. Toward some integration of learning theories: the concept of optimal stimulation. *Psychol. Reports*, 1955, 1, 27-33.
30. Lorenz, K. Z. *King Solomon's Ring*. London: Methuen, 1952.
31. McClelland, D., et al. *The achievement motive*. New York: Appleton-Century, 1953.
32. Marquis, Dorothy P. Can conditioned responses be established in the newborn infant? *J. genet. Psychol.*, 1931, 39, 479-492.
33. Miller, N. E., & Dollard, J. *Social learning and imitation*. New Haven: Yale Univer. Press, 1941.
34. Miller, N. E. Learnable drives and rewards. In S. S. Stevens (Ed.), *Handbook of experimental psychology*. New York: Wiley, 1951, 435-472.
35. Miller, N. E. Learning and performance motivated by direct stimulation of the brain. In D. E. Sheer (Ed.), *Electrical stimulation of the brain: subcortical integrative systems*. Houston: Univer. Texas Press, 1957.
36. Miller, N. E. Liberalization of basic S-R concepts: extensions to conflict behavior, motivations, and social learning. In S. Koch (Ed.), *Psychology: a study of a science*. Vol. 2. *General systematic formulations, learning, and special processes*. New York: McGraw-Hill, 1959.
37. Montgomery, K. C. The role of the exploratory drive in learning. *J. comp. physiol. Psychol.*, 1954, 47, 60-64.
38. Mowrer, O. H. On the dual nature of learning—a reinterpretation of "conditioning" and "problem-solving." *Harvard educ. Rev.*, 1947, 17, 102-148.
39. Murray, H. A., et al. *Explorations in personality*. New York: Oxford, 1938.

40. Myrdal, G. *An American dilemma*. New York: Harper, 1944.
41. Olds, J., & Milner, P. Positive reinforcement produced by electrical stimulation of septal area and other regions of the rat brain. *J. comp. physiol. Psychol.*, 1954, 47, 419-427.
42. Olds, J. Physiological mechanisms of reward. In M. R. Jones (Ed.), *Nebraska symposium on motivation*. Lincoln: Univer. of Nebraska Press, 1955.
43. Olds, J. Adaptive functions of paleocortical and related structures. In H. F. Harlow, and C. N. Woolsey (Eds.), *Biological and biochemical bases of behavior*. Madison: Univer. of Wisconsin Press, 1958.
44. Piaget, J. *The origins of intelligence in children*. New York: Int. Univer. Press, 1952.
45. Sheffield, F. D., Roby, T. B., & Campbell, B. A. Drive reduction vs. consummatory behavior as determinants of reinforcement. *J. comp. physiol. Psychol.*, 1954, 47, 349-354.
46. Sigel, I. E. The dominance of meaning. *J. genet. Psychol.*, 1954, 85, 201-207.
47. Skinner, B. F. *The behavior of organisms*. New York: Appleton-Cenutry, 1938.
48. Spelt, D. K. The conditioning of the human fetus in utero. *J. exp. Psychol.*, 1948, 38, 338-346.
49. Spence, K. W. Theoretical interpretations of learning. In S. S. Stevens (Ed.), *Handbook of experimental psychology*. New York: Wiley, 1951, 690-729.
50. Spock, B. *The pocket book of baby and child care*. New York: Pocket Books, 1946.
51. Taylor, R. Hunger in the infant. *Amer. J. dis. Child*, 1917, 14, 233-257.
52. Tinbergen, N. Social releasers and the experimental method required for their study. *Wilson Bull.*, 1948, 60, 6-51.
53. Watson, J. B., & Raynor, R. Conditioned emotional reactions. *J. exp. Psychol.*, 1920, 3, 1-4.
54. Wolfe, J. B. Effectiveness of token rewards for chimpanzees. *Comp. Psychol. Monogr.*, 1936, 12, No. 60.

6

SOCIAL LEARNING IN THE FIRST YEAR

The first year is a critical developmental period in the life of the child, largely because of the unique relationship between the child and its mother during these months. In no other period during his life will the child be as helpless and dependent upon another human being.

The neonate begins life with few, if any, specific emotional or instrumental responses to the cues of other people. There are no innate tendencies to love, to hate, to fear, to approach, or to avoid people. The child's experiences with human beings during this year lay a foundation for his future attitudes toward people. In cases of *extreme* neglect or rejection during this year, there may be irreparable damage to the child's capacity for developing satisfying interpersonal relations in the future. The child's learned reactions to the individual who cares for him (in most cases, the mother) form the nucleus of his later behavior toward others.

THE NEEDS OF THE INFANT

It will be recalled that an important factor in learning is a need that impels the child to learn some response to reduce the need. Many of the newborn's primary needs (e.g., for oxygen or elimination) are reduced automatically through innate mechanisms. The infant is not required to learn any new response to relieve the tensions that result from these needs. There are, however, a number of primary needs that do require the action of another person for gratification. These are hunger, thirst, and alleviation of pain or cold. In addition, the tactile and kinesthetic stimulation associated with cuddling and holding, which appears to be innately rewarding, requires close interaction with another person.

Hunger

It is difficult to differentiate the needs of hunger and thirst in infants, since both are typically gratified by drinking milk. Therefore, in order to

simplify the discussion, both will be referred to as "hunger." The stimuli associated with the need for food regularly mount to a high level of intensity several times a day, and the infant is almost completely dependent upon someone else's participation for gratification of this need. If there is a long delay between the first twinges of hunger (internal stimuli) and their relief, tensions may mount considerably. Since such delays are practically unavoidable and occur frequently, hunger is the primary need most likely to reach a high level of sustained stimulation. Hence, much of the child's earliest learning will be built on the basis of this need.

Oral Phase

Psychoanalytic theory places a great deal of emphasis on the importance of hunger and the experiences that surround the gratification of this need. Psychoanalysts regard the first year of life as the oral stage of development (24). This concept refers to the fact that the child's major sources of gratification during this period involve oral activity (sucking, swallowing, biting). It is assumed that these activities make the mouth and lips an *erotogenic* area (an area which supplies pleasurable sensations), and focus the child's attention on this part of his body. Moreover, psychoanalysts believe that absence of satisfactory feeding experiences have a deleterious effect on the child's future development and, in some cases, can lead to severe forms of mental illness in later life (i.e., manic-depressive psychosis and schizophrenia) (23, 24).

Tactile Contact with The Mother

Some psychologists and psychiatrists emphasize that physical contact between mother and infant is innately gratifying or rewarding. A series of ingenious experiments on newborn monkeys by Harry Harlow of the University of Wisconsin indicates that tactile stimulation has unlearned reward value. Harlow placed infant monkeys with "mother" monkeys that were constructed of wire mesh. Some of these infants were fed from a bottle attached to the "chest" of a plain wire-mesh mother. Others were similarly "fed" by a wire-mesh mother that differed in one respect from the other mother—it was covered by terry-cloth material. (See Fig. 22.) When the monkeys were given the choice of going to either mother, the animals, regardless of which mother had fed them, characteristically chose the terry-cloth mother and spent more time clinging to her than to the wire-mesh mother that did not have a cloth cover. This preference for the cloth mother persisted for many months, as if the monkey remembered the gratifying nature of the terry-cloth parent (42).

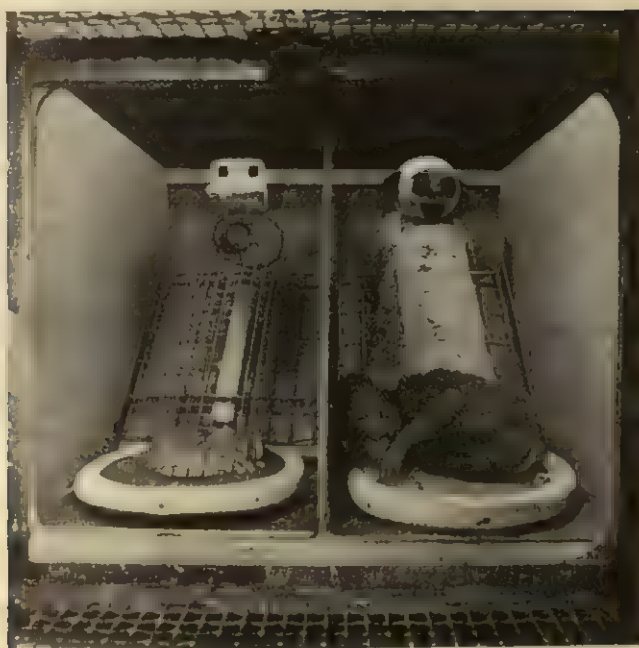


FIG. 22. Wire and cloth mother surrogates. (Reprinted from *Science* by permission, 1959, 130, 422.)

Further, when a fear-provoking stimulus (a large wooden model of a spider) was placed with the monkey, he ran to the terry-cloth mother rather than to the wire-mesh mother. (See Fig. 23.) Apparently the terry-cloth mother was more effective in reducing the infant monkey's fear than was the wire mother. When the terry-cloth mother was present, the young monkey was more likely to venture out to explore the fear-arousing stimulus. When the young animal was with the wire-mesh mother he was more fearful, and was less likely to explore the open space around the strange and fearful object.

Harlow concluded that the stimulation resulting from contact with the terry-cloth parent was innately satisfying and led to an emotional attachment to the terry-cloth parent. Since both mothers supplied adequate food to the infants, it would appear that food, in and of itself, was not the only source of gratification in the mother-child relationship (42).

Although the terry-cloth mother provided the infant monkey with both food and tactile comfort, there appear to be other important experiences that a real mother provides that are necessary for normal development. The monkeys raised only with terry-cloth mothers developed abnormal



FIG. 23. Typical response to cloth mother in the modified open-field test. (Reprinted from *Science* by permission, 1959, 130, 430.)

behavior patterns in later years. These monkeys eventually became highly aggressive and unsocial, and had great difficulty initiating heterosexual behavior. The more active, give-and-take contacts between mother and child seem necessary for adequate psychological development.

Harlow's systematic findings on the gratifying nature of tactile stimulation support some earlier speculations about human infants made by Margaret Ribble. Ribble believed that handling, fondling and rocking a baby provided him with a great deal of kinesthetic and tactile pleasure, and contributed to a positive attachment between mother and child (i.e., increased the positive reward value of the mother). In her own words, there is "an innate need for contact with the mother, and the mother who supplies this contact unstintingly fosters her child's development" (68, 628).

Ribble based her conclusions on her observations of 600 infants over a long period of time. Her attention was focused on the nature of infant-mother interactions and their influence on the child's physical and emotional condition, particularly the development of anxiety or tension states. Of the total group, 180 infants suffered from generalized, exaggerated muscular tensions. In each case, these tensions disappeared when the infant was allowed to suck at his mother's breast or was put into close contact with her body. However, if deprivation of this kind of experience continued, the infant manifested persistent muscular tension, inadequate breathing, and gastrointestinal disorders.

Ribble also asserted that women who are emotionally disturbed or

reject their children cannot provide adequate mothering for them. This generally results in one of two extreme types of reaction in the infants. One is negativism, which is characterized by refusal to suck, loss of appetite, hypertension, rigidity of body muscles, breath holding, shallow breathing, and constipation. The other reaction, regression, is marked by depressive quiescence, lack of interest in food, stuporous sleep, loss of muscle tone and reflex excitability, irregular breathing, and gastrointestinal disturbances such as vomiting and diarrhea. The extreme form of this regressive reaction, marasmus, is a malady of "wasting away," involving extreme lethargy and lack of interest, deterioration of body reflexes, increase of pallor, and muscular flabbiness.

"It seems clear from these reactions that inadequate mothering is an actual privation which may result in biological, as well as psychological, damage to the infant organism. It is in no case a casual matter of sentiment" (68, 635).

Unfortunately, this research work, although challenging, is of questionable scientific value for several reasons. There is a strong propagandistic flavor in Ribble's writings. Statistical data are inadequately reported, observational techniques are not described, and fact and opinion are not clearly differentiated. Nevertheless, Harlow's more rigorous research findings on monkeys, which are consistent with Ribble's, lend support to her conclusion that tactile contact between mother and infant is satisfying and probably contributes to the tie between mother and child.

LEARNING ABOUT THE REWARD VALUE OF THE MOTHER

It has been suggested that the mother typically is the source of several primary rewards: food, tactile contact, and alleviation of pain and warmth. It is likely that there are other, as yet undiscovered, biologically based rewards that she provides. In the typical feeding situation, the rewards of food and contact are usually present. According to the principles of learning, it would be predicted that the child would learn certain new responses in the feeding situation. Let us analyze the stimulus-response sequence that occurs in a typical feeding situation and discover what it is that the child is learning.

Initially, the child feels pangs of hunger and cries in response to this need. The mother then holds and feeds the child. As the rewarding stimuli of food and tactile contact are being received, the child is surrounded by all the visual, olfactory, and auditory stimuli that are an integral part of the feeding situation. According to the laws of learning,

any new stimulus that is associated in time with a reward (food and skin contact, for example) acquires reward value itself. Thus, the mother, as a stimulus, comes to signify, through learning, pleasure and contentment—in short, something positive. The mother becomes a cue which stands for pleasure and gratification in much the same way that the buzzer became a cue for food in Pavlov's dogs. Furthermore, the infant will learn that to approach and search out this source of pleasure will lead to effective gratification of his needs with minimal delay. The child is learning the important response of looking for and approaching his mother when he is hungry.

According to the principle of stimulus generalization, a response learned to one stimulus is likely to be made to stimuli which are similar to the original one. Other sources of pain and discomfort; e.g., injury, cold, and illness, are sufficiently similar to the pain of hunger that the child should make the same response he made when hungry. That is, the child who approaches his nurturant mother when hungry should also approach her for nurturance (gratification of needs) when he is in pain and discomfort for other reasons. This follows from the principle of stimulus generalization. Further, since the mother is similar to other people, the infant should, in varying degrees, generalize this approach response to a variety of people. In brief, the initial feeding situation can form the basis for learning whether or not people are rewarding, and whether or not approaching them leads to need gratification.

But what of the situation in which the initial feeding experience is not rewarding—a situation in which pain may be associated with the act of feeding, or where tactile contact is held to a minimum? If a mother is anxious and tense, she is apt to hold her baby in an awkward way, perhaps making the child uncomfortable. If the mother did not want the child, she might resent the labor and bother involved in caring for him. This resentment might be manifested in rough handling of the infant, in stopping the feeding before the child is gratified, or, in some cases, letting him cry for a long time before feeding him. In such instances, the child will experience pain as well as pleasure in association with the cues of the mother and the stimulus of hunger. If the painful stimuli occur frequently enough and over a long enough period of time, the cue of the mother may acquire a negative value, and she will become symbolic of pain rather than of pleasure. Since an organism's innate reaction to pain is withdrawal and avoidance, the infant may learn the response of avoiding, rather than approaching, his mother. Moreover, he is not likely to learn that to approach people when in a state of discomfort is

one way of gratifying needs. Another infant, for whom the feeding experience has been predominantly pleasant, will be more likely to look to others for gratification of his needs.

This analysis provides a partial rationale for the importance of the mother-child relation in the first year. Some theorists (21) suggest that social attitudes of trust and affection or of mistrust and hostility toward others originate in the child's relations with others during the first year of life.

In summary, early learning about people is, in part, built upon the complex sensory experiences that are associated with feeding. The feeding situation is a social one in which fundamental attitudes toward the mother are being formed. These may be positive, negative, or a conflictful combination of the two, depending on the amount of reward and discomfort associated with the mother-child relationship. Initial reactions to other people may be generalizations of responses learned in the child's earliest interactions with his caretaker.

Generalization of Social Behavior

Social responses to people constitute one of the more important categories of behavior that are initially learned as a result of interaction with a mother figure. The generalization of social responses from a mother or mother substitute to other people has been demonstrated by Rheingold in a rigorous experimental study (65). The investigator selected sixteen 6-month-old infants who were living in an institution in which many volunteers cared for the children. For eight of these infants (the experimental babies) the investigator herself played the role of mother eight hours a day, five days a week, for eight consecutive weeks. During this time, she bathed and diapered them, played with them, smiled at them, and tried to be as good a substitute mother as possible. The other eight infants (control babies) were cared for in the typical institutional fashion, without individual "mothers," but with several women performing these motherly duties in a more routine fashion. Moreover, the experimental babies received more nurturance than the controls during the eight-week period. Thus, the experimental babies differed from the controls in two ways: they had one person care for them consistently during the eight-week period and they received more caretaking during this period.

All infants were tested each week during the eight-week experimental period and for four additional weeks following the termination of the experimental treatment. The tests administered included tests of social responsiveness to three kinds of people (the experimenter, an examiner

who gave them other tests, and, at the end of the eight-week period, a stranger), as well as a postural development and cube-manipulation test.

The results revealed that the eight infants who had been cared for by the mother (i.e., the experimenter) showed much more social responsiveness to the experimenter, the examiner, and the stranger, than did the control children (65) (see Fig. 24). That is, when these people smiled or talked to the children, the experimentally treated infants were more likely to smile back or show some facial reaction to the adults than the normally treated children, the effect being most marked in response to the experimenter. These results clearly support the hypothesis that social acts learned in response to a nurturant and socially stimulating caretaker will generalize to other people. There were no significant differences in the motor development of the two groups as measured by the cube and

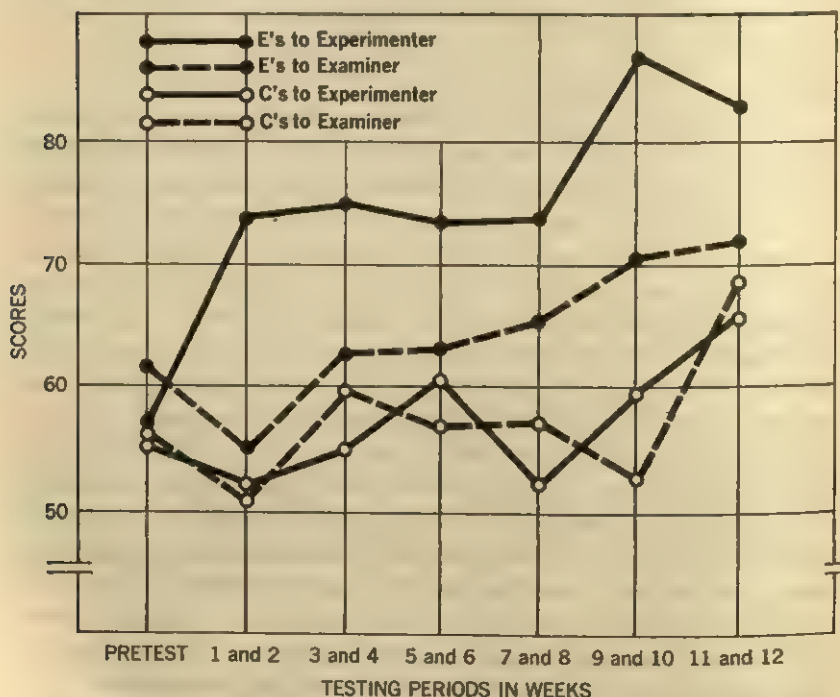


FIG. 24. The average social responsiveness of the experimental (E) and control (C) infants to the experimenter and examiner over twelve testing periods. (From Rheingold, H. L. The modification of social responsiveness in institutional babies. *Monogr. Soc. Res. Child Developm.*, 1956, 21, No. 2, 23. With permission of the Society for Research in Child Development and H. Rheingold.)

posture tests. Apparently, the experience of having the consistently nurturant and stimulating mother figure had minimal effect on simple motor skills, but a dramatic effect on social behavior (65). The author felt that the critical factor responsible for the increased social responsiveness of the experimental babies was the reciprocal and playful social stimulation that occurred between child and adult, rather than the fact that only one person performed the tasks of feeding and diaper changing.

The Smiling Response

An important milestone in the average child's social development in the first year is the occurrence of the smile to people. Between 3 and 4 months of age, many children will smile in response to the sight of another person's face. Gesell (28) and Spitz (80) have reported that by the sixth month 98 percent of a group of children produced a smile after viewing an experimenter for the first time. More recent work (93) indicates that as early as the sixth week many infants will smile to the stimulus of a face.

Moreover, the smiling response behaves like other responses, in that it is subject to the effects of reward and extinction (9). If an adult rewards the child's smile by picking him up, the child will be more likely to smile on future occasions. If the smile is not rewarded, its frequency of occurrence will decrease. For many children, there is a second dramatic change in social responsiveness that occurs at about 8 months of age (80). Now the child does not smile indiscriminately at everyone, and may show anxiety when he sees a strange face. This stranger anxiety response has been interpreted as meaning that by 8 months the infant has discriminated the mother from other people. Psychologists who have observed institutional children feel that the occurrence of anxiety to a strange face is less frequent in this group. It is possible that this anxiety response to a stranger depends on the child's knowing who his "regular caretaker" is.⁶

For children with many caretakers, a new and different face leaning over the crib is the rule rather than the exception. Thus an anxiety reaction to a stranger should be less likely to occur in an institutionally reared child. The presence of an anxiety response to a stranger during the last half of the first year may be an index of the intensity of the infant's attachment to a single mother figure.

⁶ Stranger anxiety may be an illustration of the suggestion made in Chapter 5 that unexpected stimuli are capable of eliciting anxiety. That is, at 8 months of age, the infant has built up an expectancy of what the mother "looks like." When another adult approaches the infant, and the child perceives that this adult is not the mother, his expectation has been disconfirmed. If the child has no way to categorize or react to this stimulus, his response may be an anxiety reaction.

CONSEQUENCES OF INADEQUATE CARE AND INSTITUTIONALIZATION

We have suggested that a satisfying mother-child relationship during the first year of life plays an important role in the infant's development. More specifically, the assumption is that the sensory stimulation, gratification of hunger and thirst, and the opportunities for learning, present in the normal interactions between the infant and his mother or mother surrogate, significantly affect the course of social, emotional, and intellectual development.

Such notions are not new, although until recently they had not received widespread recognition. Even in the present century, much greater attention has been given to such topics as improvement of infant nutrition and prevention of disease than to systematic exploration of the psychological needs of infants and young children. Nevertheless, as early as the thirteenth century, the historian Salimbene noted the potential significance of the child's psychological needs. In commenting on the attempt of Frederick II to rear infants under psychologically deprived conditions, he remarked:

... he wanted to find out what kind of speech and what manner of speech children would have when they grew up if they spoke to no one beforehand. So he bade foster mothers and nurses to suckle the children, to bathe them and wash them, but in no way to prattle with them, or to speak to them, for he wanted to learn whether they would speak the Hebrew language, which was the oldest, or Greek, or Latin, or Arabic, or perhaps the language of their parents, of whom they had been born. But he laboured in vain because the children all died. For they could not live without the petting and joyful faces and loving words of their foster mothers. And so the songs are called 'swaddling songs' which a woman sings while she is rocking the cradle, to put a child to sleep, and without them a child sleeps badly and has no rest (71, 9-19).

During the present century many physicians and psychologists have noted that the mortality rate among homeless infants raised in so-called infant asylums was staggering. Such observations are anecdotal, however, and subject to the types of criticism applicable to other inadequately controlled studies. Nevertheless, the degree of agreement among clinicians who have chosen to concern themselves with the effects of maternal deprivation and institutional rearing is impressive.

For a long time these observations had surprisingly little social impact. More recently, there has been a considerable shift in the thinking of authorities in social agencies responsible for the care of motherless children. Thus, instead of being kept for long periods of observation, as formerly, potentially adoptive children now tend to be placed in foster

homes as soon as possible. In cases where early adoption is not feasible, attempts at interim foster home placement are frequently made. And in those cases where continued institutionalization is necessary, efforts are being made to reproduce as many of the components of normal home life as possible, including greater interaction between infants and their caretakers. In considerable measure, these changes, some of which will be summarized, are the result of the research of many investigators (3, 25, 30, 32, 33).

Research on Institutionalization

Spitz, for example, observed the behavior of young children who spent their first year in institutions where nurturance was inadequate and inconsistent. During the second half of the first year, 15 percent of the infants began to develop an unusual sequence of behavior. At first, they cried continually, but after several months the crying subsided and they began to become indifferent to adults. "The children would lie or sit with wide open, expressionless eyes, frozen, immobile face, and a far away expression as if in a daze, apparently not perceiving what went on in their environment" (84, 314). (It is of more than incidental interest that Harlow's juvenile monkeys who were raised on wire surrogate mothers are described in a similar way.)

Spitz called this cluster of behaviors *anaclitic depression*, for it resembled adult depression in a number of ways. In many cases, this unusual behavior began to appear after the child was separated from its mother or mother substitute. If favorable mother-child relationships were reestablished within three months, a more normal course of development occurred. However, if the deprivation lasted longer than five months, the child did not improve but continued to deteriorate.

In a related study, Spitz observed additional groups of institutionalized children during the first year of life and after an interval of two years. He noted that children who spent their first year in a deprived institutional setting showed marked deterioration in their mental development during the last four months of the first year. In contrast, children from normal families, or those raised in a more stimulating and nurturant institutional setting, did not show this deterioration in mental development (78). When the investigator returned to the institution two years later, 21 of the original group were still living at the institution. The motor and intellectual development of these children was noticeably retarded; 16 of the 21 could not walk unassisted, and six had not developed meaningful speech (79).

Spitz believes that absence of social and emotional interchange between mother and child was largely responsible for the developmental retardation in intellectual skills. He concludes that:

... regularity in the emergence of emotional response, and subsequently of developmental progress, both physical and mental, is predicated on adequate mother-child relations. Inappropriate mother-child relations (as in the foundling home) resulted regularly in the absence of developmental progress, emotional or otherwise, or in a paradoxical response (81, 150).

Some aspects of Spitz's work are difficult to interpret because of methodological deficiencies. For one thing, the test of mental development used to demonstrate developmental decline in intelligence among the deprived children, has been shown by other investigators to decline somewhat even with normal subjects (62). Further, the number of deprived children at the higher age levels is smaller than the original infant group, due primarily to the loss of a significant number of infants through death, or because of adoption, return to their families, or placement in other institutions. It is possible that those who were adopted or returned to their families were developmentally superior to those who remained in the institution. Thus the apparent decline in mental ability associated with residence in the institution may be partially a result of the removal of the brighter children.

Despite such methodological problems, Spitz' findings are provocative and find some support in the work of other investigators (3, 17, 25, 76, 77). For example, in one study (77), infants and very young children were shifted from a deprived orphanage setting to an institution for mentally retarded girls where considerable stimulation and individual attention were provided by groups of mildly retarded older girl inmates, and matrons:

... the girls would spend a great deal of time with the children, teaching them to walk, talk, play with toys and play materials, and in the training of habits.

Most of the clothing for these children was made by the older girls. The girls were so fond of the children that they would actually spend their small earnings and allowances to buy them special foods, toys, picture books, and materials for clothing. Similarly, attendants gave of their time, money, and affection, and during their free hours frequently took the children on excursions, car rides, and trips (77, 123).

In this more stimulating environment, the children showed an average gain in IQ of 27 points (from 64.3 at the time when they were transferred to 91.8 two years later). In contrast, the average IQ's of a control group

of children left in the original orphanage setting showed a decline of 16 points (from 86.7 to 60.5 during this same period).

In another study (18), the degree of behavioral retardation in children reared in two types of institutions in Iran was compared. In the first, called the deprived setting, the child was never placed on his stomach, and hence could not practice creeping. He was not held in a sitting position while being fed and had no toys with which to play. In addition, only one attendant was provided for every eight children, so that interpersonal contacts of any sort were severely limited. In the second institution, called the enriched setting, the child was often placed on his stomach, was held while eating, had toys and playthings, and in general received considerably greater attention. In this latter setting, one attendant was provided for every three children.

The children in both settings typically entered the institution shortly after birth. During the second year of life, the behavior of the 50 children in the deprived setting was compared with the behavior of the 20 children in the enriched setting. While only 42 percent of the deprived children could sit alone, 90 percent of the enriched children could do so. Secondly, less than 5 percent of the deprived group could stand or walk while holding on to a support, while over 60 percent of the other children could perform these responses. Finally, no child in the deprived institution could walk alone, while 3 of the 20 children in the enriched setting were able to do so.

The experimenter felt that the lack of opportunity to learn the motor acts of sitting and walking in the deprived setting was primarily responsible for the observed behavioral retardation of children in this group. He reasoned that the deprived children were not allowed to practice creeping or sitting and, consequently, were retarded in these responses. However, the deprived children also showed more head-shaking and repetitive rocking of the body and appeared more unhappy than the enriched children. These behaviors are frequently associated with generally disturbed emotional development.

In brief, the weight of the evidence to date suggests that children raised by their mothers under normal family circumstances thrive better than children raised under relatively impersonal institutional conditions.

Relevant Variables in Institutionalization

In the opinion of some workers, the crucial variable involved in the behavioral correlates of institutionalization is absence of a mother figure. Others tend to blame "institutionalization" *per se* (i.e., lack of toys,

monotonous sensory environment, poor nutrition, disease). But neither institutionalization nor mothering are unitary variables. Institutions vary in the amount of individual attention a child is given, in the degree of sensory and motor stimulation provided, and through the opportunity to play with other children and to learn to manipulate toys and other objects. In the studies cited above, there were marked differences among the institutions involved with respect to all of these variables.

Similarly, mothering is not a unitary variable. Among children's own biological mothers, there are great interindividual differences in actual procedures of child handling. Furthermore, it can be questioned whether biological mothers are necessarily superior to all mother surrogates in child care. It has not yet been clearly established whether continuous care of the infant by one adult exclusively is more conducive to development of intellectual and emotional health than a setting which includes additional caretakers—so-called multiple-mothering (94). Preliminary studies of infants (26, 27, 63, 64) cared for by more than one mother indicate that divisions of parental responsibility may not necessarily affect either intellectual or emotional development adversely. In fact, one study (64) suggests that such rearing, in the context of a collective Israeli farm, may reduce some of the emotional problems found in overly intense individual family relationships, such as over-attachment to the opposite-sexed parent, excessive competition, hostility toward the same-sexed parent, and extreme sibling rivalry. Obviously, much remains to be learned about the different consequences of individual-versus multiple-mothering, as well as the effects of differing patterns of multiple-mothering (e.g., one central mother figure with assistants versus a more equal division of mothering duties).

The potential danger of speaking loosely about the damaging effects of maternal deprivation or institutionalization, without attempting to specify further the actual variables involved, is well illustrated in a report (10) on two residential nurseries in the Soviet Union where psychological care is adequate. In these nurseries, which are maintained primarily for research purposes, children are raised from birth to about 3 years of age. At one nursery, the most prominent feature of the child-rearing program is its stress on physical development, including diet, sleep, and, most particularly, an elaborate schedule of daily massages and exercises in which the child is involved beginning at 60 days of age.

At the other, children spend the first 3 years of life in a well-equipped nursery which includes such things as specially designed walkers and playpens. According to Brackbill, (10):

More usual than its furnishings is the nursery's program for verbal-motor stimulation of its children. This is regarded by the staff as a matter of great importance and something that merits their sustained efforts. As a part of the overall plan, every nurse has specific duties that she performs each day with all infants individually. As an example of 'verbal duties,' the task for Nurse A might be to ask each infant in turn, 'Where is the cat?', 'Where is the visitor?', 'Show me your ear.', 'Show me your hand.', and so on. In each case, the child's answer is followed by appropriate reinforcement. When the mother visits—and she is urged to visit often—she has access to the nurse's list of stimulants and is encouraged to further the verbal and motor training herself.

Attention to verbal and motor development is carried over to the toddler group. But in addition, a new goal is added to their program of upbringing. Staff efforts are now also focused on the child's development of self-help and independence. . . . the one to three year olds are shown how to pick up their toys before midday dinner, how to feed themselves, how to get along socially with their three table companions at dinner time, how to prepare themselves for a nap after dinner (10, 10-11).

No adverse effects of this kind of institutionalization have been apparent in the children at either nursery—physically, socially, emotionally, or intellectually.

If one thinks of the negative aspects of institutionalization in terms of such component variables as the absence of close personal interactions between a child and mother surrogate, minimal opportunities for social learning and development of motor responses, and lack of sensory stimulation, then it appears that the Russian nurseries described above meet few of the criteria for an institution. In many respects, in fact, they appear more closely to resemble well-ordered nurturant homes.

Sensory Deprivation

One of the characteristic aspects of most institutions where infants appear to develop poorly is that of sensory deprivation. In Spitz' foundling home, for example, the sides of the babies' cribs were frequently covered with blankets, no toys were provided, and the child's total visual experience was largely restricted to staring at a blank ceiling. In addition, the wards were typically quiet, so that the child received little auditory stimulation. Further, since the child was rarely handled, and was himself rather inactive, tactile or kinesthetic stimulation was at a minimum.

It appears, therefore, on the basis of the evidence available to date, that a great many kinds of experiences that are usually present in the complex interactions between mother and child under normal home conditions are necessary for normal psychological growth in the infant. When many of these variables are lacking—as is the case in the impersonal,

poorly staffed, deprived institutional settings—intellectual, social, and emotional development may be impaired. There is a great need for careful studies of the specific nature and effects of variables such as consistent nurturance, sensory stimulation, play objects, and opportunities for motor learning—singly and in combination—on the child's growth. At this juncture, simply to speak of the effects of institutionalization or inadequate mothering as unitary variables is confusing and not likely to contribute to our knowledge about the nature of human development during the first year of life.

Later Consequents of Inadequate Mothering

The studies cited above were limited primarily to infants and very young children, but another investigator, Goldfarb (29, 30, 31, 32, 33, 34, 35, 36), focused his attention on the later development of children who had experienced impersonal infant care (inadequate mothering). In a series of investigations, orphans who had been reared in an institution for the first 3 years of their lives before being transferred to foster homes, were compared with others (matched in age and sex) who had been brought up in foster homes since infancy. Subjects were drawn from four age groups, averaging approximately 3½, 6½, 8½, and 12 years. There were extensive case studies, observations, and test data (intelligence, education, achievement, personality, motor coordination, social maturity, and language ability) available on the children.

Children raised in the institution during the first 3 years were inferior to the foster children on all tests of intelligence. Their greatest weaknesses were in the areas of concept formation, reasoning, and abstract thinking. As late as adolescence, institution-reared children had difficulty with tests involving learning songs, rhymes, and stories; recalling the past clearly; or anticipating the future.

Many of the institution-reared children were subsequently adopted into foster homes that were intellectually and emotionally more stimulating than the institution. Despite this, they continued to be retarded in mental growth. The investigator concluded that extensive psychological deprivation during infancy may exert long-lasting influences on the child's intellectual performance.

Moreover, specific language and speech difficulties, often noted among institution children (9), persisted long after the child left the institution. Apparently, the early lack of stimulation resulted in a restricted capacity for language development which was not overcome in spite of long periods of ordinary school, family, and community experience (30, 34).

The behavior of the institution-reared children differed from the foster home children in three major ways. The former were noticeably more aggressive (temper tantrums, lying, stealing, destruction of property, kicking and hitting other children), more dependent on adults (demand attention, ask for unnecessary help), and more distractible and hyperactive. Personality tests revealed that long after they had been placed with families, institution children were less self-controlled. Case records showed that children reared in institutions did not develop strong or affectionate personal attachments, but remained emotionally cold and isolated, capable of only the most superficial interpersonal relationships. According to the author, these social and emotional difficulties, which persisted into adolescence, were related to the severe deprivations experienced in infancy when "strong anchors to specific adults were not established" (32, 33, 36).

The impersonal care, coldness, and isolation of the institutional program apparently left permanent marks on the children. The author concluded that predisposition to poor adjustment is "fixed" in the course of infantile experiences involving deprivations. Moreover, the earlier the age at which this experience is initiated, and the longer its duration, the greater is the maladjustment which is likely to be manifested.

Although language development and social responsiveness appear to be adversely affected as a result of deprived institutional care, other areas of development may not be impaired to the same degree. For example, Dennis (17) investigated institutionalized children between 2 and 12 months of age and between 4½ and 6 years of age. Both groups were living in a Lebanese institution, called the Creche, in which personal care was minimal, with an atmosphere somewhat like that in the foundling home described by Spitz. Although the children 2 to 12 months of age did not perform as well as normals on standard mental test items, the 5-year-olds were not markedly inferior to normal subjects in tests of memory and drawing. Dennis feels that the institutionalized infants performed more poorly than normals because they had no opportunity to learn the skills necessary to solve the memory and drawing test items at 1 year of age. That is, the restriction of activity, and absence of stimulation and materials may have temporarily prevented the institutional children from practicing the tasks that they were required to do on the test at 1 year of age. This retardation was not as permanent as it appeared during the first 12 months, for the 5-year-olds in the institution were not seriously retarded in memory and drawing. Dennis acknowledges, however, that the language retardation shown by the institutional

children was more permanent, for it was present in the 5-year-old institutionalized children as well as in the younger group.

SUMMARY. Studies both of infants and of older children suggest that certain kinds of institutional experience may adversely affect the course of the child's development. Development seems most severely affected in those institutional settings markedly lacking in the experiences usually present in the complex interactions between mother and child under normal home conditions. These include adequate sensory stimulation, consistent gratification of hunger and thirst, and opportunities for learning complex social, emotional, and motor behaviors.

Furthermore, there is some evidence to suggest that responses which are primarily maturational, especially the perceptual and motor skills of object manipulation and postural development, are least likely to be permanently affected by severe deprivation of consistent nurturance and interactions with an adult. On the other hand, responses that are acquired through, and involved in, social interaction, such as language and social responsiveness, appear to be more vulnerable to deprivation experiences.

Language and social responsiveness, unlike motor behaviors, necessarily involve the child and another person. One of the important reasons why the child learns to speak is in order to communicate his needs to others. When he is hungry he can ask others for food rather than cry. However, if the child does not view the environment as responsive to his needs, he will not be highly motivated to develop skill at language. Moreover, the development of both speech and social responsiveness (smiling, frowning, reaching out to people, changes in facial expression in reaction to others) requires a repeated and reciprocal interaction between the child and another person. This is readily observed in the daily experiences of a family-reared child. The mother will smile, tickle the infant, and say something; the child will smile or laugh in return. The mother will repeat this act, and the child will again laugh and thrash his legs. This repetitive pattern is probably of considerable importance in the establishment of social responsiveness to people. The child reared in an impersonal institution lacks these simple experiences, and, thereby, misses the opportunity to learn and practice the behaviors that we view as characteristic of social interaction.

Children raised in such an environment may show a syndrome marked by apathy, absence of a normal amount of emotion, and indifference to people. Since people have not previously been sources of reward to these children, they are less likely to acquire reward value. The child, there-

fore, will not be highly motivated to seek gratification through contact with others.

In a test situation with an adult, most children will be eager to do well in order to obtain acceptance and praise from the adult examiner. The deprived child does not view the adult as a potential source of nurturance and does not expect love and acceptance. For this reason, the deprived child will not be highly motivated on the test and will appear sullen, apathetic, or indifferent. In time, the severely deprived child may become incapable of an emotional involvement with people.

During the first year of life the child is highly responsive to the care and attention of adults. Rheingold's study indicated that institutionalized children can be made socially more responsive as a result of an increase in the frequency of social and nurturant acts. But, with time, it may become more and more difficult to modify the deprived child's indifference to the social environment around him.

In conclusion, it should be stressed that institutionalization and mothering are not unitary or pure variables. Institutions as well as mothers or mother surrogates can and do vary in the amount of individual attention they give the child and in the degree to which they provide the opportunity for perceptual and motor learning. Currently needed are investigations that isolate the specific nature and effect of each of the various factors involved in the infant's and young child's interactions with his environment.

THE FEEDING SITUATION

Since hunger is one of the major drives during the first year, and the feeding situation is of such potential significance in the establishment of an emotional bond to the mother, it is important to discuss some of the factors that are associated with feeding and influence the mother's feeding practices.

Certain feeding procedures are probably more likely than others to insure that feeding experiences will be gratifying. For example, nursing may be preferable to artificial feeding because it maximizes the pleasurable aspects of the feeding situation and thus helps strengthen the mother-child attachment. In breast feeding, the mother is afforded an excellent opportunity to hold the child closely and thus give him feelings of support, relaxation, tactile stimulation, and comfort. These feelings may also accompany bottle feeding *if* the child is held securely during the process, talked to, and played with; but not if his bottle is propped up

and accompanying ministrations are lacking.

Halversen (41) has shown that signs of contented feeding (steady, rhythmic sucking and swallowing movements, steady gripping, infrequent changes of body position) generally accompany nursing or feeding from a nipple from which milk is easily obtained. Signs of discomfort and frustration (strong sporadic sucking, rejection of the nipple, general restlessness, increased bodily and muscular tension) are elicited by interrupted nursing or feeding from a nipple through which milk can be obtained only with difficulty. Apparently, holding the infant comfortably during uninterrupted nursing or feeding him from a relatively easy nipple (especially if he is given an opportunity to suck a pacifier afterwards) can evoke feelings of satisfaction.

Demand feeding may be a desirable practice because it prevents the building up of painful hunger tensions. Regular scheduling in early infancy, on the other hand, may mean that the child is sometimes fed before he desires food, while at other times he eats only after his hunger pangs have become intense. As noted earlier, under either of these conditions, eating may be uncomfortable.

Of course, there are situations where the mother cannot feed her child on a strictly demand schedule because of the pressures of family or work duties. If she attempts to do so, she may become irritable and inadvertently handle the child roughly, thereby making the feeding situation unpleasant. Since babies soon develop fairly regular schedules of their own, a modified demand-feeding regimen may provide a good compromise. Under such a system, the mother can anticipate approximately the proper time to feed her child. Even though he may not be fed immediately when he cries for food, his hunger sensations will not become intense.

From our theoretical standpoint, specific feeding training practices assume their major importance because they are embedded in the matrix of mother-child relationships. If the practices employed make the feeding situations pleasant and rewarding, the child's attachment to his mother will be strengthened, and warm, friendly feelings toward her will increase. If these feelings generalize to others, as they are likely to, the child will be started on the road to good future social and emotional adjustment.

METHODS OF HANDLING INFANT FEEDING

Obviously, there are many possible ways of handling the infant's hunger. At different times, within the relatively recent past, child special-

ists have recommended diametrically opposite feeding procedures. For example, in the late 1920s and early 1930s, the writings of John B. Watson (88, 89), the behaviorist, were influential. He recommended strict, cold, and impersonal treatment. Loving, cuddling, and displays of affection were practically to be eliminated. According to Watson, the child should be forced to comply with parents' wishes and rules of conduct. As one aspect of this, he must learn to conform with a rigidly controlled feeding schedule right from the start.

Adaptation to a Schedule

Is it possible for neonates to learn such conformity? D. P. Marquis experimentally investigated the problem of adaptation to (i.e., learning) a feeding schedule within the first 10 days of life (54). She measured the bodily activities (restlessness) of two groups of infants who were on different feeding schedules. Daily changes in restlessness were used as the criterion of adaptation. One group, consisting of 18 infants, was on a four-hour feeding schedule throughout the 10-day period. Sixteen other infants were on three-hour schedules for the first 8 days of their lives, but were shifted to four-hour schedules on the ninth day (54).

After a few days, the infants' bodily activities rose sharply immediately before their next scheduled feeding, the increase being greater and more abrupt in the four-hour group. This provides some evidence that this group had learned to wait four hours for food.

On the day the "three-hour schedule" infants were shifted to the four-hour schedule, there were marked changes in their activity patterns. At the end of three hours, their habitual feeding time, body movements increased abruptly and reached the highest level recorded during the study. Apparently this group had learned to respond to hunger cues at the end of three hours. Failure to receive food at this time produced extreme restlessness and activity. It may be concluded that infants just a few days old can modify their behavior in accordance with external demands such as feeding schedules.

Factors Influencing the Mother's Choice of Feeding Practices

A mother can obviously choose from many alternative techniques for handling her infant's hunger: "warm" mothering or impersonal treatment, breast or bottle feeding, regular scheduling or demand feeding, abrupt or gradual weaning. Since, as we have seen, the feeding procedures employed may exert powerful influences on the infant's developing personality, it is important to understand the factors involved in the mother's selection of her particular method.

Cultural Factors

Throughout this book we will stress the fact that child-rearing techniques vary from one culture to another. Whiting and Child (92) found a very wide variety of feeding practices in 51 cultural groups for which they had data. The Marquesans, for example, do not indulge their children, and nurse them only a short time. Marquesan mothers, fearing disfigurement of their breasts, generally wean their infants within the first year. At the other extreme, the Chenchu tribe of India allow their children to nurse until they are 5 or 6. The Lepcha of India ordinarily wean their children by the age of 3, but youngest children are occasionally allowed to nurse until puberty.

There are also great cultural differences in the severity of the weaning process. Thus, among the Baiga, weaning is accomplished entirely by techniques of punishment, whereas the Kurtatchi attempt a gradual build-up of the child's satisfactions in eating like an adult, without actively discouraging him from nursing.

Subgroups within our own culture employ different feeding practices with their children. About 18 years ago, Davis and Havighurst (15) studied the child-rearing practices of lower- and middle-class white and Negro mothers. Their data, obtained from intensive interviews with 200 women, showed that permissive feeding and weaning treatment was more characteristic of lower-class than of middle-class mothers. More lower-class children were fed only by breast, nursed for longer periods of time and on self-demand schedules, and allowed to use pacifiers. Negro mothers tended to be more lenient than whites in their feeding procedures, nursing their children longer, feeding on demand, and weaning more gradually.

Research done about 10 years later challenged these findings on the greater permissiveness of lower-class parents. A staff of investigators at the Laboratory of Human Development at Harvard University conducted interviews with 198 upper-middle- and 174 upper-lower-class mothers in the Boston area (53). They found few differences between the social classes in infant-feeding practices. Middle-class mothers breast fed somewhat more frequently, and scheduled feedings slightly more rigidly, but neither of these differences was significant.

More recent investigations (52, 90) on the Pacific Coast and in Detroit (56) support the Harvard study in finding no striking differences between the feeding practices of lower- and middle-class mothers, especially in regard to the frequency of breast feeding. The differences between the original Chicago data and the later studies may be the result of

two factors. First, the lower-class group in the Chicago study was much lower in class standing than the lower-class groups in the Harvard and Pacific Coast studies. Moreover, in the 15 years that have elapsed between the two studies, middle-class mothers may have become educated about the value of breast and permissive feeding practices, and may have adopted more of them (12).

The recent popular literature stresses flexible, permissive feeding procedures and the establishment of warm, intimate, mother-child relationships. An excellent example is Spock's well-known *Baby and Child Care*, published in both regular and pocket-book editions (86). It has been suggested (12) that child-rearing practices are likely to change most quickly in those segments of society which have closest access—and are most receptive—to the agencies or agents of change (e.g., public media, clinics, physicians, and counselors). Since middle-class mothers are more likely to consult physicians and to read magazine articles and books dealing with child-rearing, it may be assumed that these mothers have shifted toward more permissive feeding and weaning since World War II.

Mothers' Attitudes

As we would expect, the personality of the mother strongly affects her relationship with her child and the specific training techniques she employs. An extremely orderly, rigid, compulsive mother will find strict scheduling of activities, including feeding, consistent with her general way of doing things. On the other hand, a flexible, easygoing, and affectionate mother will, in all probability, establish an intimate relationship with her infant, holding him a great deal, loving and cuddling him.

Maternal rejection may be reflected in the mother's refusal to nurse her child. The subjects of one psychiatric study were 200 children, patients at a New York child-guidance clinic (51). Half of them had been nursed one month or less, while the other 100 children had had 12 months or more of breast feeding. The investigator concluded that "in general, all factors favoring rejection of the child tend to shorten, all factors favoring protection tend to lengthen, the breast feeding act."

Recent studies call attention to the relationship between maternal attitudes and nursing behavior. In one study, 91 mothers were interviewed just after they had delivered their babies (58). On the basis of their responses, attitudes toward breast feeding were classified as positive, doubtful, or negative. The course of lactation and nursing during their confinement in the hospital was also studied.

Although there were no differences in volume of milk secretion at

the time of delivery, mothers with positive attitudes gave more milk on the fourth day than those with doubtful or negative attitudes. Among the women with positive attitudes, 74 percent were successful breast-feeders, i.e., had enough milk by the fifth day to make supplementary feeding unnecessary. Significantly fewer women with doubtful and negative attitudes were successful by this criterion. Abortive breast feeding (abandonment within a few days of the effort to breast feed) occurred in only 2 percent of the women with positive attitudes, in 18 percent of those with doubtful attitudes, and in 30 percent of the negative-attitudes group. Very few women with positive attitudes complained that their babies had difficulty in sucking or refused the breast. The investigators felt that women with negative attitudes did not allow their babies to suck enough to stimulate an easy flow of milk. These results suggest that a positive attitude toward breast feeding may facilitate the supply of milk.

In another study, 1,251 prospective mothers at a prenatal clinic were asked if they preferred the usual nursery care or a rooming-in plan for their babies immediately after delivery (47). In the rooming-in plan, the neonate is kept in the same room as its mother, thus giving her an opportunity to observe and care for him continuously from birth. The majority of women who preferred this plan also expressed a desire to nurse their babies. Among those who favored nursery care, the majority wished to bottle-feed. It may be concluded that more mothers who wished to establish close relationships immediately with their babies were more likely to choose breast feeding.

According to a recent study of 379 mothers of kindergarten children (73), 15 percent breast fed their children for more than three months. Almost one-quarter of the mothers did not breast feed because "they didn't want to." The investigators interviewed all of the mothers and evaluated the extent of their anxiety concerning sexual behavior. The authors found that reluctance to breast feed was, in some cases, associated with high anxiety about sexuality in the mother. Stimulation of the breast through sucking can arouse sexual feelings in the mother, and it is possible that women who were anxious over sexuality and anticipated tension as a result of breast feeding would not choose to breast feed. The authors felt, incidentally, that choice of breast or bottle was not related to the degree of acceptance or rejection of the child (73).

Of course, there are no one-to-one relationships between variables such as social class, maternal attitudes, and child-rearing practices. Numerous other factors may be involved in the determination of the kinds of feed-

ing techniques employed. For example, a mother who is in poor health or has breast infections may not be able to breast feed her child, regardless of her attitudes. For physiological reasons, the milk supply of some mothers may not be adequate for long periods of nursing. Working mothers and those with many children may be forced to employ regular schedules, even though they would prefer self-demand feeding. The research work reported above, however, does make it clear that the following maternal variables tend to be associated with permissive feeding and nursing: education in a philosophy of lenient child-rearing practices; favorable attitudes toward nursing; and desire for early intimate contact with the infant.

There are many fads in child-rearing techniques. But, as we have seen, there is good evidence that warm, close parent-child relationships foster good adjustment in children. It is not yet possible to make adequate evaluations of some of the specific child-rearing practices currently being recommended, and it is possible that the mother's general attitude toward her child (i.e., accepting or rejecting) is much more critical than whether she chooses breast or bottle or whether she weans late or early. Moreover, it is not possible, at the present time, to give parents easy rules of thumb to use in rearing their children. Parents should probably be guided by their own creative intelligence and a broad general understanding of the factors influencing personality development.

INTRODUCTION OF CASE HISTORIES

In order to illustrate the major points in the chapters of this book we shall trace the personality development of two normal boys as they pass through the various periods of growth. One of the basic principles herein is that the child's motives, values, and behaviors are, in considerable measure, a function of the pattern of rewards and punishments that come from the parents, and the values and attitudes that the parents indirectly communicate to the child through their everyday behavior. We have chosen to illustrate this principle by selecting a pair of boys whose parents emphasized different behaviors and goals. Both were born to accepting parents; both were born healthy; both showed average mental and motor development during the first few years of life; both had one sister and no brothers. In each case, the father was a middle-class businessman in a small town, and the mother had had some college training.

Jack's parents, however, were anxious that he be a "man"—tough,

strong, and independent. They did not want a sissy for a son, and they conscientiously avoided catering to his every whim.

Peter, on the other hand, was born to a family that was less concerned with pressuring their son into adopting conventional standards of masculinity. In fact, they punished any evidence of aggression in Peter and pampered him excessively. Both his father and mother were protective and indulgent.

Although Jack and Peter appeared to be alike during the first year of life, we shall see how these differences in parental values and attitudes influenced the behaviors of the boys as they progressed through childhood and into adolescence.

REFERENCES AND ADDITIONAL READING

1. Aldrich, C. A. The advisability of breast feeding. *J. Amer. med. Assn.*, 1947, 135, 915-916.
2. Aldrich, C. A., & Hewitt, E. W. A self-regulating feeding program for infants. *J. amer. med. Assn.*, 1947, 135, 340-342.
3. Bakwin, H. Emotional deprivation in infants. *J. Pediat.*, 1949, 35, 512-521.
4. Blum, G. S. *Psychoanalytic theories of personality*. New York: McGraw-Hill, 1953.
5. Bowlby, J. Some pathological processes set in train by early mother-child separation. In *Proceeding of seventh Macy conference on infancy and childhood*. New York: Josiah Macy, Jr. Foundation, 1954.
6. Bowlby, J. Mother-child separation. In Soddy, K. (Ed.), *Mental health and infant development*. Vol. 1. New York: Basic Books, 1956, 117-122.
7. Bowlby, J. Separation anxiety. *Intern. J. Psychoanal.*, 1960, 41, 89-113.
8. Bowlby, J., Ainsworth, M., Boston, M., & Rosenbluth, D. The effects of mother-child separation: a follow-up study. *Brit. J. Med. Psychol.*, 1956, 29, 211-247.
9. Brackbill, Y. Extinction of the smiling response in infants as a function of reinforcement schedule. *Child Developm.*, 1958, 29, 114-124.
10. Brackbill, Y. *Research and clinical work with children*. Washington, D. C.: American Psychological Association, in press.
11. Brodbeck, A. J., & Irwin, O. C. The speech behavior of infants without families. *Child Developm.*, 1946, 17, 145-165.
12. Bronfenbrenner, U. Socialization and social class through time and space. In Maccoby, E. E., Newcomb, T. M., and Hartley, E. L. (Eds.), *Readings in social psychology* (3rd ed.). New York: Holt, 1958, 400-425.
13. Cameron, N. *The psychology of behavior disorders*. Boston: Houghton Mifflin, 1947.
14. Child, I. L. Socialization. In G. Lindzey (Ed.), *Handbook of social psychology*. Cambridge: Addison-Wesley, 1954.
15. Davis, A., & Havighurst, R. J. Social class and color differences in child-

- rearing. *Am. sociol. Rev.*, 1946, 11, 698-710.
16. Davis, H. V., Sears R. R., Miller, H. C., & Brodbeck, A. J. Effects of cup, bottle, and breast feeding on oral activities of newborn infants. *Pediatrics*, 1948, 3, 549-558.
 17. Dennis, W. & Najarian, P. Infant development under environmental handicap. *Psychol. Monogr.*, 1957. Vol. 71 (Whole No. 436).
 18. Dennis, W. Causes of retardation among institutional children. *Iran. J. genet. Psychol.*, 1960, 96, 47-59.
 19. Dollard, J., & Miller, N. E. *Personality and psychotherapy*. New York: McGraw-Hill, 1950.
 20. English, O. S., & Pearson, G. H. J. *Emotional problems of living*. New York: Norton, 1945.
 21. Erikson, E. *Childhood and society*. New York: Norton, 1950.
 22. Escalona, S. Emotional development in the first year of life. In Senn, M. J. E. (Ed.), *Sixth conference in problems of infancy and childhood*. New York: Josiah Macy, Jr. Foundation, 1953, 11-92.
 23. Fenichel, O. *The psychoanalytic theory of neuroses*. New York: Norton, 1945.
 24. Freud, S. Three contributions to the theory of sex. In A. A. Brill (Ed.), *The basic writings of Sigmund Freud*. New York: Modern Library, 1938, 553-629.
 25. Freud, Anna, & Burlingham, Dorothy T. *Infants without families*. New York: Int. Univer. Press, 1944.
 26. Gardner, D. B., & Swiger, M. K. Developmental status of two groups of infants released for adoption. *Child Developm.*, 1958, 29, 521-530.
 27. Gardner, D. B., Pease, Damaris, & Hawkes, G. R. Responses of two-year-old adopted children to controlled stress situations. Paper read at Society for Research in Child Development, Washington, D. C., March, 1959.
 28. Gesell, A. & Amatruda, C. S. *Developmental diagnosis: normal and abnormal child development: clinical methods and pediatric applications*. (2nd ed.) New York: Hoeber, 1947.
 29. Goldfarb, W. Infant rearing and problem behavior. *Amer. J. Orthopsychiat.*, 1943, 13, 249-266.
 30. Goldfarb, W. The effects of early institutional care on adolescent personality. *J. exp. Educ.*, 1943, 12, 107-129.
 31. Goldfarb, W. The effects of early institutional care on adolescent personality (graphic Rorschach data). *Child Developm.*, 1943, 14, 213-225.
 32. Goldfarb, W. Effects of early institutional care on adolescent personality: Rorschach data. *Amer. J. Orthopsychiat.*, 1944, 14, 441-447.
 33. Goldfarb, W. Infant rearing as a factor in foster home placement. *Amer. J. Orthopsychiat.*, 1944, 14, 162-167.
 34. Goldfarb, W. Effects of psychological deprivation in infancy and subsequent stimulation. *Amer. J. Psychiat.*, 1945, 102, 18-33.
 35. Goldfarb, W. Psychological privation in infancy and subsequent adjustment. *Amer. J. Orthopsychiat.*, 1945, 15, 247-255.
 36. Goldfarb, W., & Klopfer, B. Rorschach characteristics of "institution children." *Rorschach Res. Exch.*, 1944, 8, 92-100.

37. Goldman, F. Breastfeeding and character formation. *J. Personality*, 1948, 17, 83-103.
38. Goldman, F. Breastfeeding and character formation: II the etiology of the oral character in psychoanalytic theory. *J. Personality*, 1950, 19, 189-196.
39. Goldman-Eisler, F. The problem of "orality" and of its origin in early childhood. *J. ment. Sci.* 1951, 97, 765-782.
40. Goldman-Eisler, F. Breastfeeding and character formation. In C. Kluckhohn & H. A. Murray (eds.), *Personality in nature, society and culture*. New York: Knopf, 1953, 146-184.
41. Halverson, H. M. Infant sucking and tensional behavior. *J. genet. Psychol.*, 1938, 53, 365-430.
42. Harlow, H. R. & Zimmermann, R. R. Affectional responses in the infant monkey. *Science*, 1959, No. 3373, 130, 421-432.
43. Hartley, E. L., & Hartley, R. E. *Fundamentals of social psychology*. New York: Knopf, 1952.
44. Havighurst, R. J. & Davis A. A. A comparison of the Chicago and Harvard studies of social class differences in child rearing. *Amer. Soc. Rev.*, 1955, 20, 438-442.
45. Holway, A. R. Early self-regulation of infants and later behavior in play interviews. *Am. J. Orthopsychiat.*, 1949, 19, 612-623.
46. Klackenberg, G. Studies in maternal deprivation in infants' homes. *Acta Paediatr.*, 1956, 45, 1-12.
47. Klatskin, E. H. Shifts in child care practices in three social classes under an infant care program of flexible methodology. *Amer. J. Orthopsychiat.*, 1952, 22, 52-61.
48. Klatskin, E. H., Lethin, A. G., & Jackson, E. B. Choice of rooming-in or newborn nursery. *J. Pediat.* 1950, 6, 878-889.
49. Levy, D. M. Experiments on the sucking reflex and social behavior of dogs. *Amer. J. Orthopsychiat.*, 1934, 4, 203-224.
50. Levy, D. M. Primary affect hunger. *Amer. J. Psychiat.* 1937, 94, 643-652.
51. Levy, D. M. *Maternal overprotection*. New York: Columbia Univer. Press, 1943.
52. Littman, R. A., Moore, R. C. A. & Pierce-Jones, J. Social class differences in child rearing: a third community for comparison with Chicago and Newton. *Amer. Soc. Rev.*, 1957, 22, 694-704.
53. Maccoby, E. E., Gibbs, P. K., and the Staff of the Laboratory of Human Development, Harvard University. Methods of child-rearing in two social classes. In W. E. Martin and C. B. Stendler (Eds.), *Readings in child development*. New York: Harcourt Brace, 1954, 380-396.
54. Marquis, Dorothy P. Learning in the neonate. The modification of behavior under three feeding schedules. *J. exp. Psychol.*, 1941, 29, 263-282.
55. Maslow, A. H., & Szilagyi-Kessler, I. Security and breast feeding. *J. abnorm. soc. Psychol.*, 1946, 41, 83-85.
56. Miller, D. R. & Swanson, G. E. *The changing American parent*. New York: Wiley, 1958.
57. Murphy, G. *Personality*. New York: Harper, 1947.
58. Newton, N. R. & Newton, M. Relationship of ability to breast feed and

- maternal attitudes toward breast feeding. *Pediatrics*, 1950, 5, 869-875.
59. Orlansky, H. Infant care and personality. *Psychol. Bull.*, 1949, 46, 1-48.
60. Peterson, C. H., & Spano, F. L. Breast feeding, maternal rejection, and child personality. *Character and Personality*, 1941, 10, 62-66.
61. Pinneau, S. R. A critique of the articles by Margaret Ribble. *Child Developm.* 1950, 21, 203-228.
62. Pinneau, S. R. The infantile disorders of hospitalism and anaclitic depression. *Psychol. Bull.*, 1955, 52, 429-452.
63. Rabin, A. I. Personality maturity of kibbutz (Israeli collective settlement) and non-kibbutz children as reflected in Rorschach findings. *J. proj. Tech.* 1957, 31, 148-153.
64. Rabin, A. I. Behavior research in collective settlements in Israel: Infants and children under conditions of "intermittent" mothering in the kibbutz. *Amer. J. Orthopsychiat.* 1958a, 28, 577-586.
65. Rheingold, Harriet L. The modification of social responsiveness in institutional babies. *Monogr. soc. Res. Child Developm.*, 1956, 21, No. 2 (Serial No. 63).
66. Rheingold, Harriet L., Gerwurtz, J., & Ross, H. Social conditioning of vocalizations in the infant. *J. comp. Physiol. Psychol.*, 1959, 52, 68-73.
67. Ribble, Margaret. *The rights of infants*. New York: Columbia Univer. Press, 1943.
68. Ribble, Margaret. Infantile experience in relation to personality development. In J. McV. Hunt (Ed.), *Personality and behavior disorders*. New York: Ronald, 1944, 621-651.
69. Roberts, E. Thumb and finger sucking in relation to feeding in early infancy. *Amer. J. Dis. Child.* 1944, 68, 7-8.
70. Rogerson, B. C. F., & Rogerson, C. H. Feeding in infancy and subsequent psychological difficulties. *J. ment. Sci.*, 1939, 85, 1163-1182.
71. Rose, J. B., & McLaughlin, M. N. *A portable medieval reader*. New York: Viking Press, 1949. Cited in Stone, L. J., A critique of studies of infant isolation. *Child Developm.*, 1954, 25, 9-19.
72. Sears, R. R. *Survey of objective studies of psychoanalytic concepts*. Bulletin 51. New York: Social Science Research Council, 1943.
73. Sears, R. R., Maccoby, E. E. & Levin, H. *Patterns of child-rearing*. Evanston, Ill: Row, Peterson, 1957.
74. Sears, R. R., & Wise, G. W. Relation of cup-feeding in infancy to thumb sucking and the oral drive. *Amer. J. Orthopsychiat.*, 1950, 20, 123-138.
75. Sewell, W. H., & Mussen, P. H. The effects of feeding, weaning, and scheduling procedures on childhood adjustment and the formation of oral symptoms. *Child Developm.*, 1952, 23, 185-191.
76. Skeels, H. M., Updegraff, Ruth, Wellman, Beth L., & Williams, H. M. A study of environmental stimulation: an orphanage preschool project. *Univ. Iowa Stud. Child Welf.*, 1938, 15, 7-191.
77. Skeels, H. M., & Dye, H. A study of the effects of differential stimulation in mentally retarded children. *Proc. Amer. Asso. ment. Defic.*, 1939, 44, 114-136.
78. Spitz, R. A. Hospitalism: an inquiry into the genesis of psychiatric condi-

- tions in early childhood. In A. Freud, et al. (Eds.), *The psychoanalytic study of the child*. Vol. I. New York: Int. Univer. Press, 1945, 53-74.
79. Spitz, R. A. Hospitalism: a follow-up report on investigations described in Vol. I., 1945. In A. Freud et al. (Eds.), *The Psychoanalytic study of the child*. Vol. II. New York: Int. Univer. Press, 1946, 113-117.
 80. Spitz, R. The smiling response: a contribution to the ontogenesis of social relations. *Genet. Psychol. Monogr.*, 1946, 34, 57-125.
 81. Spitz, R. A. The role of ecological factors in emotional development in infancy. *Child Developm.*, 1949, 20, 145-156.
 82. Spitz, R. A. The psychogenic diseases in infancy: an attempt at their etiologic classification. *The psychoanalytic study of the child*. Vol. VI. New York: Int. Univer. Press, 1951, 255-275.
 83. Spitz, R. *No and yes*. New York: Int. Univer Press, 1957
 84. Spitz, R. A., & Wolf, K. M. Anaclitic depression; an inquiry into the genesis of psychiatric conditions in early childhood, II. In A. Freud et al. (Eds.), *The psychoanalytic study of the child*. Vol. II. New York: Int. Univer. Press, 1946, 313-342.
 85. Spitz, R. A. & Wolf, K. M. Autoerotism in *Psychoanal. Study Child*. Vol. III-IV. New York: Int. Univer. Press, 1949, 85-120.
 86. Spock, B. *The pocket book of baby and child care*. New York: Pocket Books, 1946.
 87. Thurston, J. R., & Mussen, P. H. Infant feeding gratification and adult personality. *J. Personality*, 1951, 19, 449-458.
 88. Watson, J. B. *Psychology from the standpoint of a behaviorist*. Philadelphia: Lippincott, 1924.
 89. Watson, J. B. *Psychological care of infant and child*. New York: Norton, 1928.
 90. White, Martha S. Social class, child-rearing practices and child behavior. *Amer. sociol. Rev.*, 1957, 22, 704-712.
 91. Whiting, J. W. M. The frustration complex in Kwoma society. *Man*, 1944, 140-144.
 92. Whiting, J. W. M., & Child, I. L. *Child training and personality*. New Haven: Yale Univer. Press, 1953.
 93. Wolff, P. H. (personal communication).
 94. Yarrow, L. J. Maternal deprivation. *Psychol. Bull.*, 1961, 58, 459-490.

7

DEVELOPMENT IN THE SECOND YEAR

The quality of warmth and the nurturant relation between child and mother, crucial during the first 12 months of life are, of course, also of major importance during the second year. In addition, however, events which were not of special significance earlier now become salient in the child's learning about himself and his world.

The critical psychosocial phenomena of the second year, in our culture, center upon the beginning of socialization. Socialization refers to "the whole process by which an individual, born with behavioral potentialities of an enormously wide range, is led to develop actual behavior which is confined within a much narrower range—the range of what is customary and acceptable for him according to the standards of his group" (17, 655). In brief, it is the process by which the individual becomes a member of his social group through acquisition of the group's values, motives, and behaviors.

The socialization demands made upon the child during this period include cleanliness training, control of tantrums, and moderation of incipient tendencies toward autonomy. The speed with which socialization proceeds during the second year will be influenced by the rate and degree of physical, motor, and language development. Let us, therefore, consider these growth phenomena first.

GENERAL PHYSICAL DEVELOPMENT

In general, physical development in the second year still proceeds rapidly, although more slowly than in the first year. For example, the average infant grows about 4 inches, and gains 4 to 5 pounds during the second year, as opposed to height increases of 8 to 9 inches and weight gains of 14 to 15 pounds during the first year (88). At 2, the average child is 32 or 33 inches tall and weighs approximately 28 pounds (87, 88).

There is a positive relation between amount of fat and height, with

the fatter children being slightly taller than the leaner ones. Moreover, this association between fat and stature is evident through 12 years of age (33).

Skeletal Structure

The infant's skeletal structure also changes during the second year. Bones increase in size and number and become modified in texture. Although the 2-year-old still has a great deal of cartilage, he has many more calcified bones than the 1-year-old. The fontanelles, or soft membrane spots in the skull, generally close (i.e., the bones become hardened and fused) somewhere between the ages of 18 and 24 months, and most of the child's temporary teeth erupt during the second year (87).

Body Proportions

It will be recalled that, compared with adult body proportions, the newborn infant is top-heavy. His head is too large for his body, and his cranium is out of proportion to his face, his arms are too long, and his legs, hands, and feet are too short. Differential rates of development of the various body parts during the first 2 years produce a body build more like the adult's. For instance, the head grows a good deal more slowly than the rest of the body and assumes more adultlike proportions as the facial skeleton becomes relatively larger. Between birth and 2 years of age, both the arms and legs develop rapidly, the former becoming comparatively longer.

Muscular and Nervous Systems

The child increases markedly in strength during the second year, as his muscles develop more, accounting for a greater proportion of body weight. His potential for making new, finer, and more precise movements is also increased as his nervous system develops. His brain becomes heavier, increasing from an average of 350 grams at birth to about 1,000 grams, three-quarters of its total adult weight, at age 2. The rest of his nervous system also becomes more complex and more highly differentiated. Immature nerve fibers which previously have not been entirely separated become insulated from one another by developing protective fatty shields. This process is called *myelinization*.

MOTOR DEVELOPMENT

Walking

As the child's general physical status advances, his motor response capacities become correspondingly enlarged. The locomotor phases

preceding independent walking—sitting, crawling, creeping, standing, walking with support—were discussed in Chapter 4. Apparently neuromuscular maturation, rather than specific practice, is the chief antecedent of these responses. Available evidence suggests that this holds true of independent walking, too. In other words, it again appears that physical maturation—or more specifically, changed body proportions, advanced neural development, and increased muscle strength—is far more crucial than practice in determining the child's progress from one locomotor stage to another. However, complete absence of any opportunity to practice creeping or standing may retard the child's locomotor development (23).

By 12 months of age, the average child is able to pull himself to a standing position and walk with support. By 14 months he can stand alone, and by 15 months he walks awkwardly and cautiously, but unassisted. These, of course, are normative, average data, and there are wide individual differences among perfectly normal children. Some children walk independently as early as 10 months; others not until they are almost 2 years old. In general, severe illness during the first 2 years may delay slightly the onset of creeping and walking (83). There is no evidence to support the popular opinion that "heavier types of infants are later sitters, standers, or walkers than lighter ones" (70, 38).

According to one large-scale investigation, the average child can walk up and down stairs with help at about 20 months, and without assistance by the end of the second year (7). Like other locomotor activities, the initial ability to climb stairs seems to be more influenced by maturation than by learning experiences. Gesell and Thompson (33) demonstrated this experimentally, using the method of co-twin control. One of a pair of identical twins (T) was given 6 weeks of daily practice sessions in stair climbing beginning at the age of 46 weeks. The other twin (C) had no contact with stairs until she was 53 weeks old. At this time, however, she was given a brief 2-week training course in stair climbing and after this practice, twin C climbed more rapidly and efficiently than her sister (37, 116).

These studies demonstrate that locomotor skills do not emerge until the child's neuromuscular apparatus is sufficiently mature. Until this time, efforts to "teach" him these responses are bound to meet with failure. Under normal conditions, the child will make these responses when he reaches the required maturation level. After he becomes capable of these basic locomotor responses, however, practice brings improvements. For example, in walking and stair climbing, coordination improves; waste

movements are eliminated; steps become longer, straighter, and more rapid.

Other Motor Skills

Physical developments in the second year set the stage for a vast expansion in other motor skills, too. There are marked improvements in such activities as reaching, grasping, block building, eating, self-feeding, and handling objects. Some samples, taken from Gesell's research (34), illuminate the range of activities and the progress made during this year.



FIG. 25. The child at eighteen months. (From A. Gesell and C. S. Amatruda, *Developmental diagnosis: normal and abnormal child development*. New York: Hoeber, 1941.)

The average 15-month-old can build a stable tower of 2 cubes, insert a pellet into a bottle, and place a round block correctly in a formboard, although at 12 months he could do none of these. At 18 months, he can throw a ball and construct a tower of 3 blocks (see Fig. 25). The 2-year-old can kick a ball, turn the pages of a book, insert three blocks into their proper places in a formboard, and build a column six to seven cubes high.

LANGUAGE AND INTELLECTUAL DEVELOPMENT

Language refers to the particular set of symbols that allows for intelligible communication among individuals in a culture. Language skills include the ability to speak, to write, and to comprehend the symbols of one's language community.

Despite the fact that language is a universal human characteristic, psychologists and linguists are not sure of the basic units that are learned, and do not have an adequate theory to explain how the child learns to speak sentences.

An important distinction that must be borne in mind as we discuss language development is the difference between the production and comprehension of language. The ability to *speak* words and sentences may not be governed by the same processes that control *understanding* of words and sentences, for some children develop adequate comprehension of language, and yet are unable to speak. Moreover, the normal child's level of understanding typically surpasses the maturity of his speech—he understands more than he can express.

The Elements of Language

The most popular classification of the basic elements of language has involved the concepts of phonemes (basic speech sounds) and morphemes (basic meaningful sounds). In Chapter 4 we described phonemic development during the first year. Like progress in locomotion and manipulation, progress in language in the second year is the consequence of both maturation and learning. It will be recalled that most of the earliest sounds emerge in the child's spontaneous vocal play without special training (cf. p. 112). These originally meaningless utterances (phonemes) constitute the elements from which true speech develops. However, the types of sounds uttered by the babbling infant appear in more or less random sequences, having little relation to the sequence of sounds used in the language (16). Moreover, the age of beginning

babbling or the frequency of babbling does not seem to be related to age of talking (i.e., the early or frequent babbler is not necessarily the early talker). The complete absence of any spontaneous vocalizations in a 1-year-old, however, might be a sign of disturbed development.

A recent study has further demonstrated that frequency of phonemes uttered or the average number of different phonemes uttered is unrelated to general intellectual development in the 16-month-old child. However, by 24 months there is a moderate relation between occurrence of phonemes and score on an infant intelligence test (41). Groups of 20 children (10 boys and 10 girls) at ages 16-18, 20-22, 24-26, and 28-30 months were given two infant intelligence tests, and samples of their vocalizations were obtained. There was no relation between IQ score and frequency of phonemes for the youngest group (age 16-18 months), but a moderate relation existed for the children 20-29 months of age. Girls produced more different sounds than boys at all age levels (42).

During the second year, the infant's repertoire of basic sounds (phonemes) grows. On the average, 1-year-olds can pronounce 18 phonemes; by 23 months, the average is 25. Throughout the first year, vowel sounds predominate in the infant's babbling, and vowel types of phonemes outnumber consonant types. After the first year, however, the vowel-consonant ratio becomes reversed. By 23 months, the number of vowel types in the baby's repertoire has increased to about 11, the number of consonant types to about 14 (48, 49).

Among the consonants, the proportion of nasals (e.g., *m*, *n*) increases, while the proportion of fricatives (e.g., *f*, *v*, *s*, *z*) drops considerably. Sounds made with the forward parts of the mouth, (postdentals, dentals, and labials) become more frequent, while sounds emanating from the throat and back of the mouth decrease. These changes are largely attributable to physical maturation.

Two other changes [affecting language development] which follow shortly in the last quarter of the first year of life, are the experience with solid food, which stimulates chewing and exercises jaw muscles, and dentition. As chewing activity increases and nursing and sucking activity decreases, the sucking pads in the cheeks of the infant become absorbed, which again alters the shape of the oral cavity. He also acquires front teeth, usually 4 upper and 4 lower ones by the end of the first year, which give a new front wall to the oral cavity and make possible dental and postdental consonant sounds. It is only after respiration has been satisfactorily established, after the child has assumed the erect posture, has ceased to be nursed, has begun to use solid food, and after the frontal incisors have erupted, that the onset of true speech is observed (60, 513).

The Development of Meaningful Words and Grammar

Meaningful language consists of the placement of words in a standard order, and it appears that acquisition of a vocabulary as well as rules for the correct grammatical placement of words develop simultaneously. This does not necessarily mean, however, that these classes of behavior are learned in the same way.

The growth of a vocabulary involves the acquisition of language forms that are representative of objects and events in the world. The child learns that the word *apple* refers to an object that is red or green, of a definite shape, and edible. With age he learns words that not only refer to specific objects but also to *classes* of objects or events (e.g., food, vehicles, justice). As he learns the vocabulary of his language, he becomes capable of communicating with others, of understanding the speech of others, and of thinking. It is difficult to overestimate the importance of language in human behavior. In addition to being the basis of all social communication, language is essential for almost all of the higher mental processes, such as planning, thinking, reasoning, attention, memory, and judgment. In short, when the child learns to use language, he encounters "a host of dramatic new possibilities" for psychological growth (68, 84).

VOCABULARY GROWTH. Second-year development is marked by swift and dramatic improvements in language ability. The child begins to use words meaningfully; his comprehension of questions and commands increases; his speech becomes more comprehensible. He begins to respond to simple commands at about 10 months. The first word—generally a single or duplicated syllable such as bye-bye, mama, or dada—is spoken around the first birthday, on the average.

According to one investigation, by the age of 2, the average child had spoken 37 different words in the presence of an examiner (80). There were marked individual differences, of course, the range being from 6 to 126 words. These are hardly accurate estimates of the children's verbal achievements, however, for the data are based only on *spontaneous* talk during periodic routine examinations.

In another study, the investigator tested the total effective vocabulary (defined as the ability to speak *or* to understand the test words) of 154 children below 2 years of age. She found that word knowledge increased tremendously during the second year. The average vocabulary of the 1-year-old, according to these tests, was 3 words. By 15 months, the average was 19; by 18 months, 22 words; by 21 months, 118; and by 2 years, 272 words (82).

LANGUAGE COMPREHENSION. The child's passive vocabulary (i.e., the words he understands) is first learned in the context of familiar objects or actions (e.g., "Here's your milk," "Say bye-bye," "Eat your cereal"). The child probably understands many words he cannot utter. Moreover, in most cases, the child's comprehension of a word or phrase is facilitated by the inflection of the speaker and the context in which the communication occurs. That is, the young child's comprehension of the word "stop" is dependent on the fact that the mother expresses this word loudly, with affect, and at a time when the child is engaged in some activity. Second, the child's initial comprehension of language is not always in terms of discrete words, but involves groups of words or phrases. Thus, the 18-month-old is apt to perceive the phrase "stop that" as one unit rather than as two distinct words. Two major developments in language comprehension during the first 3 to 4 years, therefore, involve (1) understanding of a word independent of the inflection in which it is spoken or the situational context in which it occurs and (2) the differentiation of discrete words from larger word groups.

LANGUAGE EXPRESSION. The child's active vocabulary (i.e., the words he can utter) typically begins to appear at the end of the first year with the labeling of simple objects or acts (milk, eat, mama, go). Early in the second year the child uses his vocabulary to make requests or to describe his environment. It is at this stage that he will point to his glass and say with pride, "Milk." One of the salient characteristics of speech during the second and third years is the use of single words to stand for entire clauses or sentences. The child will say "Shoe" and mean "Take off my shoe," or he will say "Eat" and mean "Is baby going to eat now?" or, perhaps, "I want to eat now."

As in the process of language comprehension, the child is apt to combine words and utter them as one unit, as though he regards them as one word. He may say "prebed," meaning "pretty bed"; or "bakity," meaning "baby kitty."

THE GRAMMAR OF THE 2-YEAR-OLD. A second aspect of language concerns its grammatical structure. The child of 3 may say "Give me the milk," rather than a random, chaotic combination of these four words. Further, the child of 3 understands the sequence of words, "Go to the table and get the milk," but would be confused if these nine words were uttered in reverse order. Thus, the child typically places the word "the" before nouns rather than after them; he places objects of action after verbs rather than before them.

The speech of the 2-year-old is composed mainly of nouns, verbs, and

adjectives and, typically, each is used to express entire thoughts (e.g., "hot" is used to mean "The water is hot"). It is unusual for the child to place adjectives before nouns or to use prepositions, articles, or conjunctions in his speech. The child does not use these forms or construct sentences that resemble adult language until the preschool years.

Learning and Language Development

Most studies of language development have dealt primarily with age norms rather than with the process of learning language. Unfortunately, we have little exact knowledge of the factors influencing the acquisition of verbal responses in infancy and early childhood. However, there have been at least two notable theoretical contributions to this problem, one by Miller and Dollard and one by Mowrer. Both theories employ fundamental learning concepts, such as secondary reward value and generalization, and stress the role of imitation in verbal learning.

In discussing the development of comprehension and speech, Miller and Dollard say:

At the same time that the child is practicing his own crying responses, he is learning to respond to the voices of others. Adults who are feeding, fondling, and otherwise caring for infants usually talk to them; thus certain tones of the human voice acquire a reward value and may later be used to soothe the fretful child. It seems possible that this acquired reward value of the sounds in the language generalizes to sounds which the child makes while he is babbling and helps to reinforce his babbling behavior.

In general, a child's first contact with the more formal aspects of language is in learning to use words spoken by other people as cues for his responses. A sharp "No!" is followed by punishment, which can only be escaped by stopping or retreating. Eventually, stopping becomes anticipatory and occurs to the word "No" spoken sharply, without the punishment. At the same time, "No" is acquiring an anxiety-arousing value, so that any response which brings an escape from a torrent of "Noes" is rewarded. Exactly which verbal cues a child will learn to respond to and how he will learn to respond to them depends, of course, upon his learning capacity at the particular age and upon what his parents try hardest to teach him.

At the same time that the child is being rewarded for making more responses to words as cues, he is gradually learning another aspect of language, namely, how to make the response of uttering words. If a cookie is out of reach, the response pattern of pointing at it with the body and eyes and reaching for it with the hand is often rewarded by inducing some older person to give the child the cookie. If this gesture is accompanied by a sound, it is more likely to be rewarded. If the sound seems to be some appropriate word, such as "look-at," reward is still more likely. Eventually, the more effortful parts of the gesture drop out, and the verbal response, which is least effortful and most

consistently rewarded, becomes anticipatory and persists. The mechanism of reward gradually differentiates language from its original matrix of other, more clumsy, overt responses. The child learns to talk because society makes that relatively effortless response supremely worthwhile.

The child is given meticulous training in connecting words to objects and connecting acts to words. He is also given careful training in connecting words to other words, in combining words into sequences of stimulus-producing responses (66, 81).

On the basis of his study of "The psychology of talking birds," Mowrer suggests a "tentative hypothesis"—in some respects similar to that of Miller and Dollard—relating verbal behavior to the mother-child relationship.

It is very generally agreed, in all human societies, that a good mother is one who is loving and attentive to the needs of her child, and it is also a common expectation that mothers will coo and make other gentle noises when caring for their young. These two practices—loving care combined with vocalization—presumably create in the infant a predisposition to react with emotional satisfaction, first to the vocalizations of others and later to his own vocalizations. Since the sound of the mother's voice has often been accompanied by comforting measures, it is to be expected that when the child, alone and uncomfortable, hears his own voice, it will likewise have a consoling, comforting effect. In this way it may be supposed that the infant will be rewarded for his own first babbling and jabbering, without any necessary reference to the effects they produce on others.

Gradually, from what the infant probably perceives as an inarticulate murmuring or warbling on the part of the mother, certain specific, recognizable words emerge which are especially welcome and reassuring, so that when, in the course of random vocalization, the child hits upon a sound that is recognizably like a sound which the mother (or possibly the father) makes, the child is motivated to reproduce that noise over and over and to try to perfect it, since a perfect reproduction of it is more satisfying than is an imperfect one. If one wishes to call this a kind of self-contained trial-and-error learning, there can be no objection, provided we remember that it has been preceded by important emotional conditioning and that the success of the infant's efforts at vocalization is not necessarily dependent upon the reactions of others. *It is the child's own reactions to the sounds he makes which seem all-important at this stage.*

In suggesting that the utterance of word-like noises occurs first on a purely autistic basis, I mean, specifically, that when a child or a bird is lonely, frightened, hungry, cold, or merely bored, it can comfort and divert itself by making noises which have previously been associated with comfort and diversion. These sounds have become "sweet music"; and they are reproduced, not because of their social effectiveness, but because of the intrapsychic satisfaction they provide. Later, once particular sounds have been learned on this autistic basis, the stage is set for them to function instrumentally, in connection with

the child's (or bird's) interactions with the external world; but this appears to be a second stage in language learning, not the first one (67, 699).

A number of studies yield evidence consistent with these hypotheses. For example, one researcher (55) demonstrated that, with increasing age, infants' imitations of adult sounds become progressively more accurate. These modifications and improvements in imitation, have been explained in terms of learning-theory concepts similar to those of Miller and Dollard and of Mowrer.

When the child accidentally, and later purposefully, reproduces sounds which he himself has made, the adults in the environment usually say a real word which the child's sounds appear to approximate. This tends to give auditory reinforcement to the sounds the child has just made, at the same time making for more precise perception and rendition of the approved sound groups. Thus there occurs a progressive elimination of errors and a selection of movements which give the best approximation to the real word heard in the speech of adults. Continued practice thus results in the fixation of the sound groups, which come to be uttered habitually (60, 518).

Other empirical data support Mowrer's hypothesis that close parent-child relationships contribute a great deal to the child's early verbal progress. As we noted in Chapter 4, institutionalized infants under 6 months of age who do not have close relationships with adults are inferior to children living with their families, both in frequency of vocalization and in number of phoneme types used. The retardation persists and may become more marked as the children become older (39). Freud and Burlingham (31, 32) also noted that children under 2 who were separated from their families were backward in speech development.

The relationship between speech retardation and lack of emotional stimulation in the home was demonstrated in a clinical study comparing 50 children who were delayed in speech with 50 who talked at the normal age (8). The children in the delayed-speech group tended to be isolated, frightened children who played alone, cried easily, and did not seem to want attention.

All these findings indicate that, as learning theorists would predict, "severely neglected children and those whose attachments to adults were interrupted and infrequent . . . are slow in learning to speak and may remain retarded in speech throughout their lives" (15, 288).

The Learning of Grammar

The child's mastery of the grammar of his language is a universal phenomenon, yet psychologists are not able to explain how the American

child learns to put noun phrases at the beginning of sentences, adjectives before nouns, and objects of action after verbs. There is no doubt that the inflection certain words receive focuses the child's attention on these units. Adults tend to emphasize nouns and verbs when they talk to the child, and perhaps this is one reason why nouns and verbs are the first words to appear in the child's speech. Moreover, consistent exposure to sentences which contain the adult sequences of nouns, adjectives, and verbs may lead the child to learn certain rules. For example, he may learn that words in the beginning of a sentence have a certain degree of similarity for they usually refer to concrete objects (e.g., the dog is coming; the milk is hot). Through repeated exposure to language the child may acquire, in a way that we cannot completely explain, a set of implicit rules that guides his speech production. It seems he has learned that in a declarative sentence (in contrast to a request), he speaks the words that refer to objects in the beginning of the sentence. Thus the child is able to make a statement he has never heard before (e.g., The plane is crashing.) because he can apply this rule to the construction of new sentences.

In summary, the principles of learning suggest that if speech acquires reward value because it is spoken by a person who is nurturant, and because it helps the child to obtain desired goals more efficiently (as in asking for food or a toy), the tendency to learn the adult forms of language will become increasingly strong. But while these principles help to explain part of language learning, there is still a great deal we do not understand. For example, it is not uncommon for the child's first use of a complicated word to be correct in content, grammatical placement, and articulation—without extensive practice and correction by adults. Although we might assume that this phenomenon is the result of covert practice, it is difficult to prove this assumption. Second, the 3-year-old child is apt to utter complex clauses or sentences that he has never heard or uttered before. That is, he is capable of combining familiar words into a complex and novel utterance. These phenomena are not easily explained with existing learning principles and will require an elaboration of existing theory or new principles for their explication.

Group Differences in Language Development

SEX DIFFERENCES. During infancy, girls surpass boys in all aspects of language; onset of speech, vocabulary size, length and complexity of sentences, comprehensibility of speech, and number of phoneme types used (41, 48, 49). With age, however, these sex differences become less

marked. For example, at age 3 girls are not consistently superior to boys in language skills, although girls show more mature articulation than boys, i.e., their pronunciation of words approximates the adult forms to a greater degree (85).

Social-Class Differences

Verbal achievement is probably more highly valued and rewarded in middle- and upper-class than in lower-class homes. Hence, we might predict that children from upper-class homes would make more rapid progress in language and achieve higher levels of verbal performance than lower-class children. The available data confirm this prediction. One investigator discovered that infants under a year old from professional and business families vocalized more and used more phonemes than those from working-class homes (47). Another study indicated that, on the average, children with delayed speech came from less well-educated families and families of lower occupational status than those who talked at the normal age (8). A study of older children, age 3 to 8, clearly demonstrated that older children from lower-class families performed more poorly on a variety of language tasks (e.g., length of sentence, vocabulary) than children from middle- and upper-class families (85).

General Intellectual Growth

As a consequence of maturation and learning, and the interaction between them, the child makes tremendous strides in his ability to behave adaptively (intelligently) during the first 2 years. In Chapter 4, Piaget's stages of sensorimotor intelligence were described. During the second year the child's perceptual-motor coordinations are more intentional in character, signs of problem-solving behavior emerge, and the child begins to think symbolically (71).

During the second year, the child begins to learn the primary component of intellectual behavior—he begins to learn the language symbols that stand for objects. If the mother offers the child an oddly shaped object and says, "Here is some candy," the child will react to the verbal label attached to the object and probably pop the morsel into his mouth. At 10 months of age, the same situation would elicit a crude fingering of the object, and the child would be as likely to throw the piece of candy on the floor as he would be to eat it. In short, at about the end of the second year the character of the child's mental life undergoes a significant change. He begins to react to objects on the basis of what

they are called, rather than on their physical qualities. To a 6-month-old, a candy egg and a ball are small, round objects to grab. These same objects elicit markedly different reactions from a 2-year-old because of the different language labels applied to them.

The emergence of symbolic thinking during the second year is perhaps the most important developmental change in mental functioning that the child experiences, for the complex activities of reasoning, memory, and language comprehension all involve the use of symbols.

Infant Intelligence Tests

There are a number of scales designed to evaluate infant intelligence, e.g., California Preschool Mental Scale, Cattell Intelligence Scale for Infants and Young Children, Merrill-Palmer Scale, Minnesota Preschool Scale, and the Gesell Developmental Schedules. (See Fig. 26.) These tests, however, tap functions and skills that are vastly different from



FIG. 26. Materials used with the Gesell Developmental Schedules. (With permission of The Psychological Corporation.)

those sampled in the intelligence tests given to preschool and school-age children. At these later ages, intelligence tests are heavily weighted with items dealing with abstract thinking, reasoning, and memory.

We cannot test a one-year-old on abstract thinking; we don't even know if he is doing it at this age. We cannot test the three-year-old on complex reasoning, because he has not developed adequate sustained attention and under-

standing of directions to attempt the problem. Investigators have concentrated on those aspects of behavior which can be identified objectively in the young child (18, 167).

For this reason, most infant intelligence tests are made up primarily of sensorimotor tasks.

In order to study mental growth during the first 3 years, Bayley (5, 6) assembled 185 items taken from a number of widely used infant intelligence scales. She drew particularly heavily from the Gesell and Amatruda Developmental Schedules which test four major areas: motor; "adaptive intelligence"; language; and personal-social behavior. Bayley's own "mental series includes tests of adaptability or learning and tests of sensory acuity and fine motor (manual) coordinations" (6, 90). The following, taken from Bayley's scale, illustrate the kinds of items used in infant tests. Numbers in parentheses refer to the age placement (months) of the items.

- Says two words (12.9)
- Spontaneous scribble (13.2)
- Tower of 2 cubes (13.5)
- Throws ball (15.8)
- Tower of 3 cubes (16.3)
- Puts cover on box (17.5)
- Places pegs in holes in 38 seconds (18.2)
- Turns doorknob (20.0)
- Builds tower of 6 cubes (21.3)
- Points to 5 pictures (23.1)

The child's score is based on his performance on these items.

In Bayley's follow-up studies, children were examined at frequent intervals beginning in early infancy. During the first few years her own 185-item scale was used, and at 6 and 7 the subjects were given the Stanford-Binet. Correlations between scores on the infant tests and on later tests were insignificant. The writer therefore concluded that "scores made before 18 months are completely useless in the prediction of school age abilities" (6, 100).

Moreover, test performance at 21 months gives a negligible prediction of success on the Stanford-Binet at 6 or 7 years (44). These findings emphasize the difficulty of making an accurate prognosis of the future ability of a child on a mental test before the age of 2.

While these scales have little predictive value for the population at large, they may help to identify cases of gross sensorimotor or language retardation. On the basis of extensive clinical experience, Escalona con-

cludes that these tests "can succeed in detecting the mentally deviant at a very early age, often before pathology becomes manifest through pediatric or neurological examinations" (29, 120).

SOCIALIZATION AND TOILET TRAINING

As we noted earlier, the second year of life usually is the time when most parents begin to make major socialization demands upon the child. They begin to impose restrictions on activities that the child normally finds pleasurable; they demand that he inhibit certain kinds of behavior that he enjoys. The child is asked to stop making so much noise at dinner, to stop messing his food, to stop jumping up and down on the bed, and to delay bowel and bladder elimination until he can get to an appropriate place. Although some parents delay systematic socialization training until the third year, the majority of them start the tasks of toilet and cleanliness training, and the curbing of tantrums, destructive activity, and unrestricted wandering when the child is between 12 and 18 months of age. The problem, however, is that exploration of closets, fingering of expensive china vases, and spontaneous urination are naturally gratifying to the child. The demand to delay or curb these behaviors may be one of the first major sources of friction between parent and child, and the mother's role in relation to the child may now begin to change.

When the mother initiates toilet training with her child she becomes a "teacher," expecting him to assume some independence and responsibility for his own care.

During feeding training,

She acts in a supportive manner, giving, providing, bringing to him. In toilet training her role is quite different. She does nothing *for* the child, only *to* him. He has no initial desire to use the potty; her putting him on it is not a reward, as is her giving him food. Only gradually does he learn to *want* to have approved toilet habits, and the desire comes at the end of the mother's training activity; it is not there while she is teaching. Thus, toilet training fills no need, satisfies no initial drive; it is nothing but a modifier of behavior, a frustration, mild under the best procedure and dreadful under the worst (78, 187).

The child who has been the recipient of all bounties of the home . . . now confronts a considerable change in his environment. Now, instead of being the receiver, he is asked to begin to be the giver. Now, instead of being contributed to, he is asked to make a contribution. Now, instead of being in the position of irresponsibility, he is asked to assume a responsibility in relation to himself (27, 44).

One of the major difficulties in toilet training stems from the fact that it requires substitution of voluntary control for what is initially an

involuntary reflex process. Originally, when the bladder and bowel are full, strong tensions are produced and urethral and anal sphincters are automatically released, expelling the urine or feces.

To meet cultural demands this sequence must be rearranged. The connection between bowel stimulus and the evulsion response must be weakened. The child must learn to suppress the evulsion response to the bowel drive stimulus alone. It must then insert other responses in the sequence. At first it must learn to call to the parents. It must later learn to insert walking, unbuttoning, and sitting on the toilet chair while it is still suppressing the urgent evulsion response. Only to a new pattern of cues—the bowel stimulus, the cues of the proper room, the sense of freedom of clothes, the pressure of the toilet seat on the child's thighs—may the evulsion response occur without anxiety.

In short, this response occurs not only to the pressure of the primary drive involved but also to the complex stimulus pattern just named. If one can once get the child to order the responses correctly, the strong tension reduction produced by defecation will reinforce the responses to the pattern of cues enumerated. The real problem, therefore, is getting the child to suppress the naive evulsion response and to insert a considerable series of responses into the sequence before evulsion (26, 137).

Toilet Training as a Learning Situation

Since bowel and bladder control must be acquired, learning theory may also provide a framework for understanding the process. On the basis of this theory, we can make some predictions about effective and ineffective methods of training and about the immediate and long-time consequences of various types of procedure.

There are at least four reasons why a child would gradually adopt a class of adult behaviors that involved inhibition of a naturally strong impulse. The child may want to "be like" his parents, and, therefore, adopt their behaviors. This process involves *identification* and will be discussed in detail in a later chapter. The desire to identify with a parent probably does not become strong until about 4 years of age and most parents are unwilling to postpone toilet training that long.

Second, the child may imitate the parent's actions, as he does when he picks up daddy's pipe or mother's lipstick. However, if imitation is to occur, the child must have the opportunity to see the adult action he is to copy. Since inhibition of the urge to evacuate is not an overt act, and since most parents close the bathroom door behind them, the child usually does not have any clear model of the behavior he might imitate.

Third, the child may learn to inhibit a response because every time he successfully inhibits his urge to evacuate, he is rewarded by his parents. Theoretically, it is possible for a child to become trained

through consistent rewarding of a correct response (i.e., going to the bathroom). However, many parents find it difficult to refrain from a punitive statement or action when the child has an accident.

Thus, in most cases, a fourth mechanism is usually involved in training—the motive of anxiety. That is, the child will learn to inhibit immediate evacuation because of anxiety over potential punishment or withdrawal of parental affection if he does not inhibit spontaneous evacuation.

Since most parents in our culture expect the child to be trained by age 3, they are forced to rely on the latter two mechanisms (i.e., rewarding the child for a successful response and punishing him for accidents). In most instances, therefore, some degree of anxiety becomes attached to the urge to defecate or to urinate. This anxiety motivates the child to call for the parents, to run to the bathroom, and to initiate all the behaviors that are involved in training.

By watching for signs that the child needs to urinate or defecate, and taking him to the bathroom immediately, the parent has the opportunity to reward the child for using the toilet. If this is done frequently, the connections between the pattern of internal cues (bowel and bladder tensions) and the external cues (the bathroom) and the responses of excretion become strengthened. On subsequent occasions, the child is likely to withhold elimination until he gets to the bathroom. If the child is able to talk or signal his needs in some other way, the learning process will be easier.

As we saw earlier, responses are more likely to be strong if they are greatly rewarded. It could therefore be predicted that the mother who has previously established close relationships with her child will have less difficulty than others in training her child, since her approval has become an important type of reward for him.

This seems sensible when we view toilet training—or any training for that matter—as a “barter” between parent and child. The mother is asking the child to give up a response he enjoys. In return she must offer something valuable. When the mother is loving and nurturant, the barter is a fair one and the child is willing to give up his reflexive elimination, since, in return, he continues to receive the affection he enjoys and needs. If the mother is not nurturant, then the child does not receive sufficient reward for inhibiting actions his mother regards as “bad.” If, in this latter situation, the mother resorts to physical punishment in order to accomplish the training, the 2-year-old may come to see her as a person to be feared and avoided.

Consequences of Overly Severe Toilet Training

Psychoanalytic theory emphasizes the psychological significance of toilet training and regards this period as the anal stage of development, in contrast to the oral stage of the first year (27). The theory implies that traumatically severe training produces intense anxiety in the child, associated feelings of aggression toward the parents, and a predisposition to develop a variety of symptoms (maladaptive behaviors) in later childhood and adulthood.

The principle of learning theory may also be used to make predictions about the possible consequences of overly severe toilet training (i.e., training that involves extreme degrees of punishment). In general there are at least four kinds of undesirable outcomes that may result from severe toilet training; a negative perception of the mother, the development of maladaptive behavioral symptoms, anxiety over sexuality, and a negative perception of the self.

Negative Perception of the Mother

According to learning theory, all the stimuli that are associated with pain will become tinged with anxiety. Thus, the mother who is overly punitive may begin to acquire some negative or anxiety-arousing value because she has become a source of pain and fear for the child. For some children, the toilet-training experience may be the first time that strong anxiety is associated with the mother. If the mother has been nurturant during the first year of life, her positive value might be sufficient to neutralize some of the negative feelings produced by socialization demands without a marked change in the perception of the mother. But if the mother has been cold and rejecting, then use of strict toilet training is much more likely to have a deleterious effect on the child, and lead to negative feelings toward her (77).

Development of Maladaptive Behaviors

Early initiation of toilet training is likely to be associated with rebellion against the training. Observations of parents and children during this period suggest that if severe punishment and restriction are attendant upon the toilet training, the child may become hostile toward the parent. In some cases, aggressive behavior may be directed toward the person doing the training. These aggressive responses are not the aimless rages of the 8-month-old but are directed attacks upon a specific person. The child may scream, bite, or kick, or, if language is available, direct verbal attacks at the parent. Less direct methods of expressing

hostility include serious resistance to training itself. In the first year of life, the child may resist feeding by pushing away the food or clamping his mouth shut. During the toilet training, his resistance and possible resentment toward the parent may be expressed by refusal to evacuate while sitting on the potty. Often the mother will sit with the child for half an hour and, then exasperated, take him off, only to encounter immediate urination or evacuation. By upsetting his mother, the child can find gratification for his aggressive motives. The parent who shows an extreme degree of upset in this situation is providing the child with an easy target for his aggressive feelings and is actually rewarding the resistant behavior.

Severe training can lead not only to the development of aggression toward the mother, but also to irritability, and temporary lapses in bowel and bladder control (77). Moreover, some of these behaviors may persist into later childhood. In one study of a large group of normal children, "it was found that long continued enuretic (bedwetting) patterns occurred most often in boys who were slow maturing, both physiologically and intellectually, and whose training by energetic mothers was started too early, maturationally, to be followed by success" (57, 84).

The reader should note that early initiation of training (i.e., 6 to 8 months) need *not* be excessively punitive and anxiety arousing, if the mother is patient with accidents. In practice, however, many mothers who start training early do so because they are upset by dirty diapers. These mothers are likely to punish accidents and, for this group of children, early training is apt to be severe training.

A study of 213 problem children between 1 and 13 years of age suggested that premature or severe toilet training may also affect the child's long-term adjustment adversely (45, 46). The subjects were referred to a child guidance clinic because they manifested symptoms such as: conduct disorders; motor disturbances (restlessness, tics, body manipulation, speech disturbances); physical symptoms of functional origin; and emotional symptoms; for instance, pathological fear of school failure despite adequate intelligence. Analysis of the case histories of these children indicated that in over half of the cases bowel training had been started "prematurely," completed "too early," or had been accomplished by coercive methods (marked use of shame, or suppositories, rigidity of toilet schedule, unduly frequent placement on toilet). A great majority (63 percent) of the prematurely or coercively trained children reacted immediately with one or more of the following symptoms of emotional distress: continuation of wetting, fear of the toilet, defiance, anger, aversion to urine, wetness, stickiness, overconcern with cleanliness. Fifty-

eight percent of the children were still enuretic (bed wetters) after they were 3 years old.

Unfortunately there was no matched control group of normal children with whom to compare the problem cases in this study. Hence, although the frequency of histories of coercive training among the maladjusted seems very high, we cannot be confident of the investigator's conclusion that this factor in itself is an important determinant of personality disturbance. The findings suggest, however, that severe training practices are often followed by temporary emotional upset and problem behavior. It seems likely that, once begun, severe maladaptive reactions may be maintained for a long time.

Evidence presented in one study indicates that children who were severely toilet-trained tended to become highly compulsive, aggressive, and fearful in later childhood (92). Clinical data from another study also indicate that children who were trained too early revealed rigid behavior and mildly compulsive characteristics (24). Other investigators have also presented evidence supporting the hypothesis that severe toilet training is related to a high degree of aggression in boys (78) and to negativism (a combination of resistance to pressure and self-assertion) (57).

Dollard and Miller (26) have pointed out that excessive timidity and overconformity may also stem from unduly severe toilet training. If the child is punished too frequently, he will feel that it is safe to make responses only when he is certain that they are correct (i.e., in conformity with his parents' expectation of him). He may become inhibited, timid, and afraid to attempt responses that are not specifically approved by his parents.

Such findings and theoretical statements suggest that severe toilet training may have unfortunate consequences for the child. However, they do not establish that there are any invariant relationships between specific techniques and specific symptoms. As with feeding practices, it appears quite likely that toilet-training disciplines employed are not ordinarily of critical significance in themselves. They may be important in terms of their intimate connection with parent-child relationships in general. As we pointed out earlier, toilet training is a learning situation in which the mother-child relationship may deteriorate, handicapping subsequent healthy emotional and social adjustment.

Toilet Training and Sexual Functioning

Another possible negative outcome of punitive toilet training involves the individual's sexual functioning. The 2-year-old child does not clearly

differentiate between the process of elimination, the organs of elimination, and the products of elimination. That is, he tends to apply the same words to these three concepts. According to the principle of mediated generalization, anxiety that is associated with the acts of elimination and evacuation, as a result of punitive training, may be generalized to the organs of elimination (i.e., the genitals). The physical proximity of the genitals, urethra, and anus makes it easy for anxiety reactions about elimination to generalize to sexual functioning. "In other words, some of the emotion that is engendered at this period over bowel and bladder functioning spreads out and encompasses sexuality, since the organs of sexual functioning and excretion are the same" (27, 46). If anxieties connected with the sexual organs persist, the individual may have some difficulty in making mature sexual adjustments in adolescence and adulthood. Thus, one of the foundations of anxiety concerning sexuality in adulthood may develop during the toilet-training period.

Sears, Maccoby, and Levin reported that, "in our interviewing (of mothers) we found it difficult to keep the topics of sex training and toilet training separate. The questions were separate but the mother's answers were not. When we were discussing modesty standards (actually referring to sex and nudity), mothers would describe their efforts to train their children not to urinate outdoors" (77, 107-8). Apparently, in the minds of many mothers, there is an intimate association between urination and evacuation, on the one hand, and exposure of genitals and sex-modesty training, on the other. It is not surprising, therefore, that the anxiety associated with each of these areas may support the anxiety attached to the other, and both activities may become sources of tension.

Toilet Training and The Concept of Self

A final, far-reaching possible consequent of punitive toilet training relates to the development of the child's feelings about himself. The 2-year-old has difficulty discriminating between his parents' reactions to his lack of cleanliness and their reactions to him as an individual. That is, he may interpret their disappointment with his uncontrolled bowel movements as disapproval of him as a person. Since the parents' reactions toward the child are, to a great extent, the sources of his attitudes toward himself, he may come to think of himself as a dirty, unworthy, or unwanted individual.

For many years, psychologists have been concerned with the individual's concept of himself and his self-esteem. This phrase refers to the

child's evaluation, conscious or unconscious, of all his characteristics—his assets, liabilities, and role behaviors. The self-concept is learned as a result of interaction with the social environment. Lack of nurturance by the parents may lead to a feeling of "I am not lovable." Toilet training, with its associated parental statements of "You're dirty," "You're smelly," or "You're naughty," can lead to feelings of unworthiness and the development of an anxiety-arousing self-concept. The young child views his parents as wise and all-knowing figures. When a mother calls her child "dirty" day after day, the child may begin to believe that this is one of his characteristics. Since he will learn later that people avoid "dirty" things, he may behave as if he expected people to avoid and reject him.

Social-Class Differences in Techniques of Toilet Training

All parents do not begin toilet training at the same time, and parents differ in their techniques of training. Their choice of when and how to train appears to depend partially on social class and cultural factors.

A survey of sociological and anthropological literature on toilet training reveals that, as in the case of feeding training, there is a wide diversity of practices. Cultures vary greatly in the age at which toilet training is begun, and in the degree of severity or permissiveness with which it is managed. Extreme indulgence in training is illustrated by the practices of the Siriono of South America, who never punish the child even if he urinates or defecates on his parent. In this society, the mother makes almost no effort to train her child in habits of cleanliness until he can walk. Even then, he is taught gradually, with a great deal of help, and without punishment.

The Tanala of Madagascar, on the other hand, are extremely severe in their cleanliness training practices. These people make no use of diapers, and anal training is begun at the age of 2 or 3 months. The child is expected to have gained control by the age of 6 months, and he is severely punished for accidents after that time.

Recent research on social-class differences in the United States (54, 56, 89) indicates that lower- and middle-class American parents do not differ markedly in the age at which toilet training is initiated. However, lower-class mothers tend to be more physically punitive in their training, while middle-class mothers are more likely to use scolding and verbal threats of disapproval and deprivation of privileges. Middle-class mothers are probably more influenced by magazine articles and books on child-rearing which, during the last ten years, have generally emphasized a more permissive approach to toilet training (14, 89).

Time of Initiation of Training

Child experts (27, 36, 45) generally agree that training should be delayed until the child is "ready" for it, i.e., until his neuromuscular apparatus is mature. He should be able to sit up comfortably, to understand, and to communicate. This means that reliable learning of bowel and bladder control is not ordinarily possible until the child is about 18 months old.

If the child is burdened with learning a set of coordinated responses as complicated as those involved in the voluntary control of bowel movements before his neuromuscular development has reached the state that he can cope with such a task, he is placed under too great a burden from a psychological and physiological point of view (45, 306).

According to a recent interview study of over 300 mothers (83), the majority initiated bowel training at between 9 and 14 months and completed it at approximately a year and a half. The mothers who started bowel training later required less time to train the child than those who started early. That is, as would be expected, training is apt to be easiest when the child's neuromuscular and conceptual abilities are sufficiently developed for him to "hold back" elimination until the appropriate time and to understand the purpose of the training. Bowel training is accomplished most easily when it is initiated either during the second 6 months of the child's life or after 20 months, with the latter requiring the least time and effort (77).

Maternal attitudes toward toilet training are not independent of attitudes toward other behaviors. It appears that if a mother is severe in her toilet-training procedures, she tends to make strict demands for the adoption of mature table manners, orderliness, quietness, good school performance, and inhibition of aggression to parents. Moreover, these mothers were not permissive of masturbation and social sex play. The authors write:

We get the impression of a rather pervasive quality of strictness in the mothers who were most severe in toilet training. They seem to have been seeking to achieve more mature standards of conduct at a faster pace than other mothers. They had more tendency to drive rather than to lead their children and they used a more punitive kind of discipline (77, 121-122).

Enuresis

Nighttime dryness is a more difficult task for the child to accomplish than keeping clean during the day, because sleep blots out the warning

signals for urination. Almost one-half of the mothers interviewed in the Sears, et al. study reported that by age 2, nighttime wetting had stopped. When training was severe, the child either learned before age 2 or persisted in wetting until he was 5 or 6. As with bowel training, if the mother was cold, undemonstrative, and severe, the child was most likely to persist in bed wetting.

In conclusion, toilet training does not have to be a traumatic stage in the child's development. If the child is mature enough to understand why this request is being made, and the mother-child relation is a warm and friendly one, the establishment of control can proceed smoothly. There may be psychological hazards in the training process if it is initiated prematurely or with harsh and punitive techniques.

EXPLORATORY BEHAVIOR AND THE LEARNING OF AUTONOMY

By 14 to 18 months of age, the average child is walking and exploring his world. By age 2, he can manipulate objects, and he can use language to communicate with others. He has learned that objects have permanence and that he can effect changes in the world about him. In short, on the basis of his newly developed conceptual and motor skills, he learns that he is not completely helpless and passive to the external environment. He can change the position of objects; he can move from one end of the house to the other; he can explore cupboards, spill paint, shuffle daddy's papers. The child is learning about his skills; learning that he can gratify some of his motives by himself, without parental aid.

During the years from 1 to 3 a foundation is laid for the child's feeling of confidence in his ability to deal effectively with the environment. If the mother is overly afraid that the child will hurt himself or dirty the house, she may unduly restrict his exploratory activities and prevent him from learning that he has some power to arrange his world. The mother who is more permissive and easygoing during this stage provides a social setting that is conducive to learning independent and autonomous behavior. She rewards new responses and encourages her child to continue his exploration. If his self-initiated responses are rewarded, he learns that it is permissible to be curious and to try out new responses. Experiences of this sort foster the development of self-confidence and spontaneity. Since exploration and self-expression are frequently rewarded in a permissive family situation, they acquire reward value, and become learned needs.

The youngster who is rewarded for learning new responses becomes



FIG. 27. First steps. (Courtesy, United Nations.)

motivated to learn more. With greater freedom of movement, increased self-confidence, and a willingness to be spontaneous and creative, he will allow himself to encounter many new situations and to experiment with new solutions to problems. As he does this, his learning opportunities increase. For example, the child who has achieved success (been rewarded) in riding his kiddie car is more likely to attempt to ride a tricycle than one whose earlier efforts met with failure or punishment. Obviously the behavior and skills involved in tricycle riding cannot be rewarded and learned unless they are tried. If the child finds that "trying things out" is discouraged, he will not make the attempts.

Overprotection

In some cases, mothers who have generously satisfied all the child's earliest needs frustrate them as soon as they show any signs of independent exploration. Levy (53) demonstrated that "overprotective" mothers, who are highly permissive with their infants (breast feed for a long time, cuddle them, etc.) may actually retard their acquisition of mature re-

sponses. These mothers use two techniques, "infantilization" and "prevention of independent behavior," to maintain close, dependent, infant-mother relationships (53). The overprotective mother sees the child's growing independence as a threat to her domination and possession of him. Hence she attempts to restrict activities such as exploration and experimentation as soon as they appear. Thus she minimizes her youngster's opportunities to learn new responses.

Overmeticulousness

Like some rejecting, overprotective mothers, women who are overly concerned about order and neatness in the house may inhibit their children's spontaneous exploratory activities. If the youngster is spanked or scolded every time he explores outside a designated area or grabs something which is not his, pain and punishment become associated with such responses. Subsequently unfamiliar areas and objects become capable of eliciting fear and anxiety, and the child learns to avoid them in order to escape these tensions.

Obviously children must learn to keep away from places and objects which are dangerous, valuable, or fragile. But if the child is continually restricted or repeatedly rebuked for his independent exploratory behavior, he may become extremely inhibited. Fear of punishment will keep the child from practicing and perfecting his newly developed skills, such as walking, and thus may contribute to his becoming an awkward, poorly coordinated individual.

Moreover, anxieties attached to the practice of locomotor and manipulative responses may generalize and become pervasive fears of attempting anything new. A child with such fears appears to be lacking in self-confidence. Having been punished so frequently for displaying curiosity or for experimenting, he is reluctant to venture out, to have novel experiences, or to try to do anything he has not done before.

Such a child is afraid to act in any way that does not meet his parents' standards precisely or does not bring specific parental approval. He is likely to experience difficulties in social adjustment, since he has never learned to deal adequately with new problems (ones for which he does not have ready-made answers) as they arise.

The explorations during this year facilitate the development of a confident self-image. It is likely that a parent who constantly punishes the child for disrupting the house, or repeatedly tells him how dangerous it is to climb upon things, is attaching anxiety to the response of exploration. If the anxiety becomes sufficiently strong, this pairing of fear with

the child's exploratory activity may lead to strong inhibitions against trying anything novel or challenging.

MATERNAL BEHAVIOR—AFFECTION AND THE GIVING OF AUTONOMY

In investigations of the varied and complex nature of the mother-child interaction, psychologists have assessed the consequents of a variety of maternal behaviors. Warmth, acceptance, overprotection, granting of freedom, democratic discipline, rejection, hostility, punishment, and detachment are some of the more frequently used adjectives to describe the mother's relation to the child. Regardless of the sample of mothers used or the psychologist doing the assessment, two basic dimensions of maternal behaviors seem to be particularly important in describing the mother-child interaction. These are *hostility* versus *love*, and *overcontrol* versus the *granting of autonomy* (76). These two dimensions may be combined in different ways; that is, a loving mother can be controlling and restrictive, or she can give her child freedom of action, and allow him to explore his world and set his own limits. Similarly, a rejecting mother can either restrict the child's activity or she can be indifferent and let him do as he wishes. Four general categories of maternal behavior can be distinguished: loving and restrictive, loving and permissive, rejecting and restricting, and finally, rejecting but permissive.

The child must be motivated to adopt the socialized behavior demanded of him. One of the most effective motives in this learning is the desire to please a loving and nurturant parent, for successful socialization involves a barter in which the child gives up his desire to "do as he pleases" in return for the continued love and affection of his mother and father. This barter will work best if the child is receiving sufficient nurturance to make it attractive to him. The parent who has not been nurturant during the first 2 years of life does not have sufficient reward value to motivate the child to adhere to parental values. Thus, maternal acceptance is a necessary condition for effective socialization.

Granting autonomy to the child is also important in the development of a confident self-image. Too little love or too much restrictive control is apt to lead to anxiety, conflict, and maladaptive behavior in the child's later years.

Perhaps the happiest combination of parental attitudes is that of acceptance and moderate autonomy. These attitudes should lead to self-confidence and effective socialization. The most deleterious combination appears to be rejection and severe restriction. This set of maternal atti-

tudes may result in seriously disturbed functioning in later childhood and adolescence.

THE MOTIVES AND SOURCES OF ANXIETY OF THE TWO-YEAR-OLD

Nurturance, Dependency and Anxiety over Loss of Love

The child between 1 and 2 years of age is naturally dependent on his parents for gratification of many motives, and he becomes anxious if this source of gratification is withdrawn. Looking to the mother for assistance and signaling her for help have been rewarded frequently in the past, and these dependent behaviors have acquired great habit strength. Unless the child was extremely deprived, his mother's learned reward value has become firmly established by the end of the first year. Her mere presence, quite apart from her function as a supplier of food and warmth, has become associated with comfort, satisfaction, and lack of tension.

In studying the development of the dependency drive during the first 2 years, Robertson and Bowlby, British psychiatrists, found that the very young infant was concerned only with food and comfort.

In the next stage, however, which began somewhere between three and six months, a new element entered in. He began to take notice of his mother as an individual and not just as a giver of food and comfort. His eyes would search for her and light up when she came his way; a bond of feeling was developing which had grown to great intensity by his first birthday. *If we look at him now that he is 18 to 24 months old, we see a little human of some individuality who is at the peak of dependency on his parents—particularly on his mother.* He is by no means content to be fed and tended by anyone, but appreciates his mother as a particular person and has a hunger for her love and presence which is as great as his body's hunger for food. He has been weaned from the breast, but he is still unweaned from complete dependence on the protection and love of this one person. His attachment is fiercely possessive, selfish, utterly intolerant of frustration (72, 137).

Freud and Burlingham (31) concur with these views.

The personal attachment of a child to its mother [which started with her providing for his bodily needs] in the first year of life, comes to its full development in the second one. It was said before that the child is attached to its mother; it can now be safely said that it loves her. The feelings for her which it is able to experience acquire the strength and variety of adult human love (31, 49).

In brief, despite the fact that the child in his second year is capable of greater independence than he was earlier, his relationships with his

mother are still of critical importance. In our culture, she remains his chief source of security, the provider of basic satisfactions, and an outstandingly important "representative of the whole outer world" (31).

During the second year of life the child is apt to show signs of anxiety when the mother leaves him temporarily. This is not necessarily a sign of pathology, but probably indicates that the child views the mother as so important to his welfare that he is upset by her absence. It may be expected, therefore, that separation from the mother will be extremely frustrating to the child and will elicit reactions indicative of emotional upset. Investigations of American and European children's reactions to separation from their mothers offer impressive evidence that this is true. One group of studies involved children whose home life was disrupted, either by World War II or other events necessitating their removal from their own families. For example, Freud and Burlingham (31, 32) worked with young children at the Hampstead Nurseries in London, where children lived while their parents were in service or employed. Those between 1 and 2 years of age reacted most violently to parting from the mother.

The child feels suddenly deserted by all the known persons in its world to whom it has learned to attach importance. Its new ability to love finds itself deprived of the accustomed objects, and its greed for affection remains unsatisfied. Its longing for its mother becomes intolerable and throws it into states of despair which are very similar to the despair and stress shown by babies who are hungry and whose food does not appear at the accustomed time (31, 50).

Emotional upsets in children this age are likely to be reflected in disturbances in physical health. During World War II, a substantial proportion of English children under 2 did not "make satisfactory progress on admission to a day nursery, as judged by their weight gains in three monthly periods" (61, 500). This was true in spite of the fact that, compared with children remaining at home, those in nurseries had almost double rations and dietetically better-balanced meals. Their failure to gain weight adequately may therefore be attributed to emotional upset stemming from separation from the mother.

Two research teams, one French and one British, have made detailed observations of infants' reactions to separation from the mother (72, 74). Their subjects, all of whom were between the ages of 1 and 2, were in public hospitals or nurseries for short periods (usually about two weeks) because of the mother's illness or pregnancy. During this time, they were attended by people who were strangers to them and their physical sur-

roundings, eating routines, and clothing were all unfamiliar.

The French group, observing babies between 12 and 17 months of age, described three major types of reactions to separation (74). The first, *intense distress*, is characterized by crying, moaning, and apathy. Children with this reaction had learned to associate need gratification with their mother's presence, and her absence was therefore upsetting.

The second, *easy adjustment*, is displayed by children who seem friendly, active, independent, happy, and even-tempered at the time they arrive in the wards. However, "no child can maintain this type of adjustment; they all come to a point where they suddenly break down and show overt distress, or more progressively develop more signs of maladjustment" (74, 70).

Moreover, children who were able to adjust easily were

... those who have already been able to acquire a certain independence and security. They all seem to belong to a rather poor social group and to be accustomed to being taken care of by genuinely warm neighbors during the daily absences of the mother. Their well-integrated play, their friendly relationship with strange adults, remind of the play of a baby kept by a friendly stranger and perfectly confident that the mother will be back. It seems that this previous social experience, combined with a rather loose, but positive tie with the mother delays their awareness of being abandoned (74, 72).

Apparently these children had already learned that their needs could be gratified in situations involving strangers and strange surroundings. For them, the new nursery or hospital settings were similar to others to which they had been exposed and in which they experienced gratification.

Most children in this survey manifested the third type of reaction, *partial or precarious adjustments*, manifesting varying degrees and qualities of maladjustment. Symptoms of this third type of reaction included mournful, strained expressions; difficulties in relationships with adults, such as disinterest, ignoring or rejecting them, demanding attention from them; and generalized signs of emotional disturbance including stereotyped and impoverished behavior.

The authors concluded that the main problem of mother-separated children is their inability to establish and maintain relationships with the adults who cared for them. "This seems to be the core of their disturbances at this age, when they are still entirely dependent on their mother and when their mother is the only person with whom they have so far been able to establish a satisfactory relationship" (79, 72).

An English research team, under the direction of John Bowlby (10, 11, 12, 13), observed groups of healthy children between 15 and 30 months

of age who were separated from their mothers out of necessity (11). Some of the children had to be admitted to a hospital (for diagnosis or surgery); others were placed in a residential nursery school because the mother was forced to work. These investigators have described three stages through which some children pass in their reactions to the separation from the mother. The first consists of *protest*, i.e., the child "frets" over the loss of the mother. He shakes his crib, cries loudly and looks eagerly for any sight or sound that might prove to be his missing mother. The warmer the mother-child relation, the longer the duration of this protest phase.

During the next phase, *despair*, he begins to accept the care, food, and gifts of the nurses, and he may even show a social responsiveness to others. But when his mother visits him he seems indifferent and he is likely to turn away from her. He seems to have lost interest in his mother.

If the child remains in the hospital or residential nursery school for a prolonged period of time, or if he becomes attached to a series of nurses who leave him after a short period of time, the child will eventually act as if neither mothering nor contact with humans were important to him.

A child living in an institution or hospital who has reached this state will no longer be upset when nurses change or leave. He will cease to show feelings when his parents come and go on visiting day; and it may cause them pain when they realize that, although he has an avid interest in the presents they bring, he has little interest in them as special people. He will appear cheerful and adapted to his unusual situation and apparently easy and unafraid of anyone. But this sociability is superficial; he appears no longer to care for anyone (13, 90).

A small group of children did not protest separation from their mothers. The researchers maintained that these children already had a low degree of attachment to their mothers as a result of "... inadequate previous experience of maternal care. None of these children behaved in a way typical of the normal family child whose dependency on the mother is at a peak at this age" (72, 133).

Perhaps these children, like Spitz's foundling home infants and Goldfarb's institution-reared children, were seldom rewarded for approaching the mother for nurturance (i.e., dependency), and hence had not developed strong dependency responses. While such children may appear to have more independence than others of the same age, this is achieved at the cost of adequate personal interactions. Those children who never learned to form attachments to others often remained disinterested or avoided subsequent social relationships.

Bowlby and his colleagues believe that some degree of separation anxiety during the second year indicates a close mother-child relation, for the child's anxiety signifies that he values the mother's presence and sees her as a nurturant person. The child who never displays such anxiety may have

... never experienced a continuous loving relationship or, more frequently, the relationship he has had has been disrupted so severely that he has not only reached but remained in a phase of detachment. As a result he remains detached and so incapable of experiencing either separation anxiety or grief. Lesser degrees of this condition are, of course, more common than the extreme degrees, and sometimes give the impression of unusually vigorous independence. Analysis, however, shows that the springs of love are frozen and that their independence is hollow (13, 109).

A more detailed behavioral study compared the response to separation of two groups of 2-year-olds (43). One group spent their days in a day nursery but went home to their parents in the evening. The second group lived continuously at a residential nursery and thus were more intensely deprived of parental nurturance. The children in this group, as compared with the day-nursery children, were generally more upset, showed a stronger desire for physical contact with the nursery staff, and displayed more outbursts of aggression. Moreover, there were more bowel and bladder accidents among the residential children and they were more likely to suck their thumbs or fingers. In a play situation with dolls, the residential children acted out more themes of hostility with the doll figures. These behaviors (i.e., desire for contact with adults, overt aggression, loss of bowel training, hostile fantasies) are all expected consequences of the combination of an increased desire for parental love and continued frustration of this important motive. The child whose need for love is frustrated is apt to show very low tolerance for any frustration, and to react with heightened aggression and temper outbursts if things do not go as he wishes.

All these studies indicate that most youngsters under 2 become upset when they are separated from their mothers, i.e., when their acquired dependency needs are not gratified. Their disturbances are manifested in maladaptive responses such as crying, peevishness, apathy, and withdrawal. These reactions are, of course, incompatible with more adaptive ones. It might therefore be predicted that more mature, adaptive, independent responses are more likely to occur—and hence to be reinforced and repeated—in the mother's presence than in her absence.

INFLUENCE OF THE MOTHER'S PRESENCE ON REACTIONS TO NEW SITUATIONS.
In order to study the influence of the mother's presence or absence on

the child's reactions, Arsenian (3) placed 24 children (between 11 and 30 months of age) in a new "insecure" situation, specifically, a strange room. Some of them were accompanied by their mothers; others were alone. Each child spent 11 five-minute periods in the strange room, which was attractively decorated and contained many toys and pictures.

The behavior of each child at each session was observed through a one-way vision mirror. The child's reactions were classified as adaptive or goal-directed (e.g., playing, locomotion, talking) or emotional, maladaptive and nongoal-directed (e.g., crying, autistic gestures, thumb-sucking, fingering parts of body, waving arms, stamping feet). Security in the situation was also rated on the basis of the type of response made (withdrawal and crying, agitated movement, retreat, attack, play, free approach).

It may be hypothesized that if the child's security is dependent on his mother's presence, he should manifest few symptoms of fear and anxiety, i.e., he should behave adaptively, when she is in the room with him. However, if he is placed there alone or if his mother leaves the room, the child should become distressed and behave maladaptively. On the other hand, a child who becomes disturbed when he is alone in the unfamiliar room should feel more secure, and behave more adaptively, when his mother accompanies him there later.

Arsenian's findings generally confirmed these hypotheses. Children who were left alone for the first few sessions spent most of their time crying and making autistic gestures. On the other hand, the majority of the children who faced the "insecure situations" accompanied by their mothers were secure from the start. During the first session they displayed three times as much adaptive behavior, and only one-third as much emotional behavior, as children who were left alone in the room. On the average, the mother-present group was rated as more secure in the *initial* session than the mother-absent group was in its *final* trials (after they had presumably become accustomed to the strange room). In summary, the mother's presence elicited positive, adaptive responses, while her absence brought out immature, maladaptive responses.

Subjects whose mothers were present *only* during the first few sessions became much less secure during later sessions when their mothers were absent. Apparently personal security in this situation, as in the English wartime evacuation centers or nurseries, was based on the mother's presence. Hence, her absence evoked responses indicative of anxiety over absence of a nurturant figure.

The children who experienced early mother-absent sessions and later

mother-present sessions became only slightly more mature and adaptive in their responses when their mothers accompanied them. The author concluded that

...the behavior of [this] group points to the difficulty of increasing the security of the child in a situation where he has been permitted to become truly insecure. Children who were accompanied by an adult from the outset were immediately or rapidly secure in the strange situation but children who were allowed to become insecure before the adult arrived did not respond rapidly to the new source of protection (3, 203).

In summary, most 1- and 2-year-olds are anxious in new situations they face alone. Under these circumstances anxiety-related responses are frequently manifested. The mother's presence—and the implied availability of dependency-need gratification—ordinarily reduces the insecurity and anxiety, and hence enables the child to react adaptively.

Anxiety over absence of or separation from the mother is probably most intense from 1 to 3 years of age. The 1-year-old child has discriminated his mother from other adults and implicitly recognizes both her reward value and his dependency upon her. Her absence, therefore, elicits strong anxiety. Signs of disturbance when the mother leaves should not always be interpreted as evidence of severe abnormality or pathology. They may indicate a close mother-child relationship.

Aggressive Motivation

Earlier, we discussed the influence of the toilet-training situation in arousing anger and aggressive behavior toward the agent of training, usually the mother. These responses are often successful for they help the child ward off the coercive demands of the mother. Every time an aggressive reaction is successful, the strength of this tendency is increased.

Reinforcement is the selective agent in the learning which produces... habits of aggression. It seems probable that a more detailed analysis of social conditions will indicate that there are two sets of circumstances in which the responses involved in the anger pattern are likely to be rewarded. In one, habits motivated by a drive and leading to a reward are blocked by the intervention of another individual. Under these circumstances, responses of aggression are likely to cause the other individual to get out of the way and thus allow the reward to be secured. Another condition is that in which a motivated response usually leading to reward is prevented by some sort of a physical obstacle, such as a sticking door. Both of these conditions will be recognized as the type of situation usually referred to as a frustration (26, 83).

Aggression

... develops because the child discovers that he can secure compliance with his wishes, i.e., rewards from the social environment, by hurting. As his knowledge of others' motivation increases, he becomes more and more skilled at utilizing this method of control. The devices he learns are a function of what the parents and others respond to, and the extent or degree to which he develops such a motive is a function of their rewarding responsiveness when he behaves injuriously—i.e., aggressively (78, 179).

Anger and aggression may be expressed in many diverse ways. During the individual's life, certain aspects of the original anger responses are rewarded and repeated, while others are punished and eliminated. New responses (such as swearing, name calling, feelings of jealousy or hate) may be inserted into the pattern of angry and aggressive behavior.

EARLY MANIFESTATIONS OF ANGER. Goodenough's study of anger in young children demonstrates how the expression of this motive is modified through learning in the early years (36). She collected data from 45 mothers who recorded a total of 1,878 instances of anger outbursts in their children (aged 7 months to 8 years) during a period of one month. The precipitating conditions and environmental factors involved were also noted. Within the first two years, the greatest share of the boys' and girls' outbursts consisted of displays of motor activity.

Such apparently unserviceable acts as those of screaming, kicking, or holding the breath may have proved themselves to be the most effective means for getting one's own way. On later occasions, therefore, such devices may have been more or less deliberately adopted by the child as methods of accomplishing his purposes (40, 53).

The data indicated that directed motor and language responses soon begin to play a part in the expression of anger. Thus, while motor or verbal resistance constituted only 14 percent of the anger responses of children under age 1, 56 percent of the outbursts of those between ages 1 and 2 fell into these categories. Since such behavior is more likely to be accepted and rewarded, or even encouraged, among boys, they manifested this kind of response more frequently than girls.

Peevishness, whining, and sulking became more common expressions of anger as children grew older, and displays of simple undirected energy decreased in frequency. "With advancing age the forms of behavior displayed during anger become more definitely directed toward a given end, while the primitive bodily responses of the infant and young child are gradually replaced by substitute reactions commonly of a somewhat less violent and more symbolic character" (40, 69).

Infants under 1 year of age had relatively long anger outbursts (median duration about 10 minutes) as compared with the older ones (median duration of about 3 minutes). Apparently, prolonged displays of anger are less likely to be rewarded after the first year; consequently the child gains "self-control," i.e., learns to shorten their duration.

The findings that the overt manifestations of anger change in form and duration indicate that the older child has learned that vigorous aggressive outbursts lead to punishment; hence he withholds this kind of expression and substitutes others. For example, few children (13 percent) under 2 had "after-effects," while 31 percent of the outbursts of the older children were followed by sullenness, resentment, or brooding. Apparently, overt expressions of anger are somewhat inhibited by older children (reduced violence and shorter duration of outbursts) while internal nonviolent responses become more frequent.

From the parents' reports, Goodenough was also able to determine the circumstances under which anger arises. Among children under 2 years of age, restricting clothing, toilet training (being forced to remain on the toilet in order to induce evacuation), and being forced to go to bed were important precipitators of anger outbursts. Protests following refusal of permission to carry out some desired activity, either by verbal or physical restraint, occurred most frequently among children between the ages of 1 and 2, accounting for 20 percent of their total outbursts. Disagreements between playmates accounted for only 10 percent of the anger manifestations at this age.

Having visitors in the home or living in a family of several adults were among the social situational factors conducive to frequent expression of anger. These are conditions which often entail frustrations for the child. Thus, when there are visitors in the home, he may be deprived of some of his accustomed attention and sources of satisfaction. If there are several adults in the home, they are likely to restrict the child's activities and prevent him from obtaining some things he desires.

Almost all these are situations in which "habits motivated by a drive and leading to a reward are blocked by the intervention of another individual" (26, 83). These are the kinds of situations in which aggressive responses were probably rewarded in the past. Hence these responses are repeated whenever the child encounters interference.

Goodenough found that greater irritability and proneness to anger outbursts were also associated with: restless sleep or bed wetting during the previous night; colds, constipation, or frequent illness; hunger; fatigue. Whether the source of the child's frustration is intrinsic or ex-

trinsic, he reacts in a way which he has learned may overcome interference, i.e., with anger and aggression (40).

In general, boys were more likely than girls to manifest temper in response to restraint. It is probable that even very young boys are allowed unhampered physical activity more frequently than girls. Therefore restriction of movement is regarded as more of an interference for them.

It is interesting to note that problems of self-help often provoke aggression among older children but account for only a small percentage of the temper outbursts of children between the ages of 1 and 2. At this age independent self-help responses cannot have acquired much habit strength; hence interference with this behavior will not be seen as very frustrating at this age. Later, when habits of self-help are firmly established through frequent rewards, blocking them may be viewed as real frustration, and hence will elicit anger responses.

Parents tried many ways of handling their children's outbursts. Ignoring attitudes, spanking or slapping, removal of the source of trouble, diversion of attention, and coaxing were used frequently to control the anger outbursts of children under two. Scolding, threatening, and isolation were more typically used by the parents of older children. The number of different techniques attempted during the course of a single outburst depended on the duration and violence of the child's behavior.

The methods which appeared to be most useful in bringing the outburst to an end often included removal of interferences with motivated activities—for example, granting the child's desire—removing the source of trouble, diverting the child's attention, providing a substitute activity, ignoring the outburst, and isolation. Coaxing, soothing, reasoning, scolding were effective only if employed in conjunction with other methods. As would be predicted on the basis of learning principles, "giving the child his own way" led to more frequent temper displays subsequently. In other words, if the child finds that his aggressive responses are rewarded, i.e., get him what he wants, he will repeat them.

On the basis of her investigations and appraisal of the children's total home situation, Goodenough concluded that:

The control of anger in children is best achieved when the child's behavior is viewed with serenity and tolerance, when the standards set are within the child's ability to achieve, and when the standards are adhered to with sufficient consistency to permit the child to learn through uniformity of experience, without such mechanical adherence to routine that the child's emotional and physical well-being is sacrificed to the demands of an inflexible schedule. However, when departures from the established schedules are made, they should be determined by a recognition of the needs [i.e., taking into account the moti-

vated, previously rewarded habits] of the child and not simply by the convenience or mood of the adult in charge. Self control in the parents is, after all, likely to be the best guarantee of self control in the child (40, 248).

Mastery Motivation

In the second year the child is likely to build towers, string beads, repeat simple acts that he has mastered, help dress himself, and show enjoyment and pleasure when he can accomplish these things. The child *enjoys* trying out a new skill, and seems to want to perfect each response as it develops. He shows what Robert White has called a need for competence, which includes the desire for

... grasping and exploring, crawling and walking, attention and perception, language and thinking, manipulating and changing the surroundings, all of which promote an effective—a competent—interaction with the environment . . . The behavior that leads to the building up of effective grasping, handling, and letting go of objects, to take an example, is not random behavior produced by a general overflow of energy. It is directed, selective and persistent and it is continued not because it serves primary drives, which indeed it can not serve until it is almost perfected, but because it satisfies an intrinsic need to deal with the environment (90, 317-318).

Children who show a strong need to master the perceptual-motor coordinations of the second year, however, are not necessarily highly motivated to master the intellectual tasks that characterize the school years. Thus, a child's school performance cannot be predicted from his interest in building block towers at age 2. Although 2-year-olds differ in the energy and persistence they invest in perfecting skills, psychologists do not yet understand the reasons for these differences. Individual differences in mastery motivation, and their effect on behavior among school-age children, will be discussed in a later chapter.

Peer Affiliation

The child of 2 is still not much interested in reciprocal play or affiliation with peers. By age 2 some children may play alongside others, but there is little interest in the activity of peers, cooperative games, or conversation. At most, the child of 18 to 24 months will exchange playthings with a friend and occasionally touch and smile at the other child. It is only during the preschool years (3 to 5) that more cooperative play begins and the child shows a desire for group activity.

Anxiety in the Two-Year-Old

Anxiety typically occurs when an individual anticipates an unpleasant event. Most sources of anxiety are learned through the association of an

unpleasant experience (and the accompanying physiological reaction) with a previously neutral stimulus. As suggested in Chapter 5, pain, a sudden, dramatic change in level or quality of stimulation, or an unexpected surprise are capable of eliciting fear.

Although previous perceptual learning must occur for the surprise stimulus to provoke fear, it is possible that this reaction has innate components. Any neutral stimulus that is associated with any of the above situations will become capable of arousing anxiety. One additional source of anxiety in the young child, which seems wholly dependent upon learning, involves an expectation of separation from sources of security and nurturance. That is, the child learns that certain people or situations are capable of relieving his states of need (i.e., cold, hunger) and giving him pleasant stimulation (i.e., tactile comfort, physical affection). If he anticipates that he has lost or will lose people or situations that perform these functions, he may become anxious. This is the source of what has been called separation anxiety. The child views the mother as important in his life, and the anticipation that she will be absent elicits an anxiety reaction.

It appears, therefore, that anxiety in the 2-year-old may have at least four different origins: anticipation of being physically hurt or harmed (based on pain); sudden changes in stimulation; lack of congruity between what is expected and what occurs; and anticipation of loss of people or situations that provide love, comfort, and security.

Observations of the 2-year-old suggest that anticipation of harm, sudden changes in the environment, and loss of the mother or other symbols of security (a blanket, a soft toy) are, in fact, the major sources of anxiety during this age period.

Jersild and Holmes (51, 52) have made extensive studies of children's fears. Their data came from standardized forms on which parents recorded all situations in which their children displayed fears during a 21-day observation period. Information was available on 136 children, ranging in age from 3 to 97 months.

During the first year, fear occurred most frequently in response to noises and events previously associated with them, falling or displacement, sudden or unexpected movement, flashes of light, persons or objects previously associated with pain, animals, and strange persons, objects, and events.

In the second year, fear reactions were elicited primarily by noises, strange events, and falling or danger of falling. Sudden movements and flashes of light were less frightening than they were previously, but fears

of animals and persons or objects associated with pain increased. Some children in the second year were afraid of the dark or of being alone, although they had not shown these fears earlier. Jersild has pointed out, "at all age levels . . . children differ decidedly in their susceptibility to fear" (50).

The origins of these differences in susceptibility to fear are not completely understood. Innate factors, similar to those underlying individual differences in the amount of activity displayed by neonates, may be involved. There is evidence that very young infants differ in susceptibility to pain. Dollard and Miller suggest that

. . . there could be individual differences in the capacity of the mechanism producing fear so that people would differ in the strength of their maximum fear responses just as they differ in the strength of grip. The strength of the innate connections between pain and fear could also differ so that fear would be more readily elicited in some people than it would be in others (26, 70).

Case Material. Peter B and Jack L in the Second Year

It will be recalled that at 1 year of age Peter and Jack were quite similar in their rate of physical growth, mental ability, and personality tendencies. However, during the second year, the major differences in the attitudes and behaviors of each set of parents began to be manifested in their treatment of the children and, subsequently, in the children's overt behavior.

PETER B. Both of Peter's parents were overly concerned about his health, growth, and general maturation. They were apprehensive about his inability to walk or talk by 14 months of age. They decided not to take a summer vacation because they didn't want to take Peter with them, and were reluctant to leave him with relatives for fear that something unexpected might happen. Peter's mother rarely allowed him to roam in the backyard. She feared he might dirty or injure himself; hence Peter's activity was largely restricted to the house and porch.

Peter's grandmother was more permissive with him. However, this leniency angered Mrs. B who felt that "routine" was the most important part of child training. She, therefore, ruled that Peter would not be allowed to go to his grandmother's during his "habit formation period."

Peter's father was a mild-mannered man with chronic asthma. He was dominated by his wife and approved of Mrs. B's babying and protective attitude toward Peter.

Mrs. B exemplified the *affectionate* and *restrictive* mother. She was afraid to let Peter explore his environment and he acceded to her wishes

with a minimum of rebellion. However, this pattern of maternal attitudes is likely to lead to fear and caution in novel situations. Since the child has not learned how to handle new stresses, he tends to withdraw when complex and novel stimuli occur.

When Peter came to the Fels nursery school at age 2 he behaved in just this way. Initially, he was afraid to leave his mother, and he whimpered when he thought that she might leave. During the first days of school, he would sit in the sand and cry. Most of the time he played alone, and seemed afraid of entering into activities with the other children. He was markedly cautious on the sliding board, swing, and in other games which involved gross motor activity. He seemed afraid to try anything that contained an element of novelty or danger.

As one might expect, he was extremely conforming and obedient with adults and usually talked with them, rather than with his age-mates. Peter's speech at this time consisted of only a few grunts, and one word, "mama." At home Mrs. B anticipated all of Peter's needs and satisfied his desires before he had to ask for the object he wanted. Since speech was not a necessary tool in obtaining desired goals, Peter had not bothered to learn to communicate verbally with other people.

JACK L. While Jack's parents were also concerned about the child's development, the focus of their concern was in a very different direction. Their main concern was that Jack should be a "real boy" and not a sissy. Mr. L became angry if Jack's mother bought him clothes with ruffles, velvet, or any accessory that appeared feminine. Both parents wanted Jack to be rough, tough, and prepared for all eventualities. Although Jack was punished for wandering far from home, there was not the strict control over exploration that Peter experienced. Jack was allowed to play outside with peers, and minor rebellion was accepted since his misbehavior was viewed as "boyish." His mother was affectionate and accepting but more permissive of autonomy and exploration than Mrs. B.

In nursery school at age 2, Jack's behavior was almost the complete opposite of Peter's. Jack spent his time on the slide, the bikes, and any apparatus he could find that would allow him to test his motor skills and abilities; Peter sat in the sandbox and cried. Jack had an air of self-confidence and, when attacked, he defended himself and his property. Peter, on the other hand, avoided any contact with peers and retreated in the face of attack.

Jack's manner reflected confidence, assurance, and minimal fear. Peter was afraid of separation from his mother, apprehensive about violation of adult rules, and cautious in his approach to new situations. It might

appear at this point that Peter had all the problems, while Jack had none.

Such, however, was not the case. Although Jack was bold in his relations with the environment, he was beginning to feel a different kind of anxiety which would eventually cause him much tension. Jack was afraid of being passive, afraid of not being masculine. His parents became anxious and uncomfortable when he displayed any behavior they would regard as "not boyish." They strongly believed that a boy must be tough, athletic, aggressive, and independent. They were not ready to accept crying, occasional dependence, or any other behavior that suggested passivity and weakness. Jack's parents were communicating these standards to him, and his behavior began to reflect these steady pressures.

REFERENCES AND ADDITIONAL READING

1. Ames, L. B. The sequential patterning of prone progression in the human infant. *Genet. Psychol. Monogr.*, 1937, 19, 409-460.
2. Ames, V. C., & Flory, C. D. Physical growth from birth to maturity. *Rev. educ. Res.*, 1944, 14, 427-437.
3. Arsenian, J. M. Young children in an insecure situation. *J. abnorm. soc. Psychol.*, 1943, 38, 225-249.
4. Bayley, Nancy. The development of motor abilities during the first three years. *Monogr. soc. Res. Child Developm.*, 1935, No. 1.
5. Bayley, Nancy. Mental growth during the first three years: a developmental study of sixty-one children by repeated tests. *Genet. Psychol. Monogr.*, 1933, 14, No. 1.
6. Bayley, Nancy. Mental growth during the first three years. In R. G. Barker, J. S. Kounin, & H. F. Wright (Eds.), *Child behavior and development*. New York: McGraw-Hill, 1943, 87-106.
7. Bayley, Nancy, & Davis, F. C. Growth changes in bodily size and proportions during the first three years: a developmental study of sixty-one children by repeated measurements. *Biometrika*, 1935, 27, 26-87.
8. Beckey, R. E. A study of certain factors related to retardation of speech. *J. Speech Disorders*, 1942, 7, 223-249.
9. Blum, G. *Psychoanalytic theories of personality*. New York: McGraw-Hill, 1953.
10. Bowlby, J. Mother-child separation. In K. Soddy (Ed.), *Mental health and infant development*. Vol. I. New York: Basic Books, 1956, 117-122.
11. Bowlby, J., Ainsworth, M., Boston M., & Rosenbluth, D. The effects of mother-child separation: a follow-up study. *Brit. J. med. Psychol.*, 1956, 29, 211-247.
12. Bowlby, J. The nature of the child's tie to his mother. *Int. J. Psychoanal.*, 1958, 39, 350-373.
13. Bowlby, J. Separation anxiety. *Int. J. Psychoanal.*, 1960, 41, 89-113.
14. Bronfenbrenner, U. Socialization and social class through time and space. In Maccoby, E. E., Newcomb, T. M., & Hartley, E. L. (Eds.), *Readings*

- in social psychology*. (3rd ed.) New York: Holt, 1958, 400-425.
15. Buxbaum, E. The role of a second language in the formation of ego and superego. *Psychoanal. Quart.*, 1949, 18, 279-289.
 16. Carroll, J. B. Language development in *Encyclopedia of educational research*. (3rd ed.) New York: Macmillan, 1957, 744-756.
 17. Child, I. L. Socialization. In G. Lindzey (Ed.), *Handbook of social psychology*. Cambridge: Addison-Wesley, 1954, 655-692.
 18. Cronbach, L. J. *Essentials of psychological testing*. New York: Harper, 1949.
 19. Davenport, C. B. Post-natal development of the human extremities. *Proc. Amer. Phil. Soc.*, 1944, 88, 375-455.
 20. Davenport, C. B. Post-natal development of the head. *Proc. Amer. Phil. Soc.*, 1949, 83.
 21. Davenport, C. B., & Drager, W. Growth curve of infants. *Proc. Nat. Acad. Sci.*, 1936, 22, 639-645.
 22. Davis, A., & Havighurst, R. J. Social class and color differences in child-rearing. *Amer. soc. Rev.*, 1946, 11, 698-710.
 23. Dennis, W. Causes of retardation among institutional children: Iran. *J. genet. Psychol.*, 1960, 96, 47-59.
 24. Despert, J. L. Urinary control and enuresis. *Psychosom. Med.*, 1944, 6, 294-307.
 25. Dollard, J., Doob, W., Miller, N. E., Mowrer, O. H., Sears, R. R., et al. *Frustration and aggression*. New Haven: Yale Univer. Press, 1939.
 26. Dollard J., & Miller, N. E. *Personality and psychotherapy*. New York: McGraw-Hill, 1950.
 27. English, O. S., & Pearson, G. H. J. *Emotional problems of living*. New York: Norton, 1945.
 28. Erikson, E. *Childhood and society*. New York: Norton, 1950.
 29. Escalona, S. The use of infant tests for predictive purposes. In W. E. Martin & C. B. Stendler (Eds.), *Readings in child development*. New York: Harcourt Brace, 1954, 95-103.
 30. Francis, C. C., & Werle, P. P. The appearance of centers of ossification from birth to 5 years. *Amer. J. phys. Anthropol.*, 1939, 25, 323-331.
 31. Freud, A., & Burlingham, D. T. *War and children*. New York: Medical War Books, 1943.
 32. Freud, A., & Burlingham, D. T. *Infants without families*. New York: Int. Univer. Press, 1944.
 33. Garn, S. M., & Haskell, Joan A. Fat thickness and development status in childhood and adolescence. *A.M.A. J. Dis. Child.*, 1960, 99, 746-751.
 34. Gesell, A. The ontogenesis of infant behavior. In L. Carmichael (Ed.), *Manual of child psychology*. (2nd ed.) New York: Wiley, 1954, 335-373.
 35. Gesell, A., & Amatruda, C. S. *Developmental diagnosis: normal and abnormal child development*. New York: Hoeber, 1941.
 36. Gesell, A., Halverson, H. M., Thompson, H., Ilg, F. L., Costner, C. S. *The first five years of life; a guide to the study of the preschool child*. New York: Harper, 1940.
 37. Gesell, A., & Thompson, H. Learning and growth in identical infant twins:

- an experimental study of the method of co-twin control. *Genet. Psychol. Monogr.*, 1929, 6, 1-124.
38. Glass, N. Eating, sleeping, and elimination habits in children attending day nurseries and children cared for at home by mothers. *Amer. J. Orthopsychiat.* 1949, 19, 696-711.
 39. Goldfarb, W. The effects of early institutional care on adolescent personality. *J. exp. Educ.*, 1943, 12, 106-129.
 40. Goodenough, F. L. Anger in young children. *Inst. Child Welf. Monogr.* (Ser. No. 9) Minneapolis: Univer. of Minn. Press, 1931.
 41. Harms, Irene E. & Spiker, C. C. Factors associated with the performance of young children on intelligence scales and tests of speech development. *J. genet. Psychol.*, 1959, 94, 3-22.
 42. Hebb, D. O. On the nature of fear. *Psychol. Rev.*, 1946, 53, 259-276.
 43. Heinicke, C. M. Some effects of separating two-year-old children from their parents. A comparative study. *Hum. Rel.*, 1956, 9, 106-176.
 44. Honzik, M. P. The constancy of mental test performance during the pre-school period. *J. genet. Psychol.*, 1938, 52, 285-302.
 45. Huschka, M. The child's response to coercive bowel training. *Psychosom. Med.*, 1942, 4, 301-308.
 46. Huschka, M. A study of training in voluntary control of urination in a group of problem children. *Psychosom. Med.*, 1943, 5, 254-265.
 47. Irwin, O. C. Infant speech; the effect of family occupational status and of age on use of sound types. *J. Speech Hearing Disorders*, 1948, 13, 224-226.
 48. Irwin, O. C., & Chen, H. P. Infant speech: vowel and consonant frequency. *J. Speech Disorders*, 1946, 11, 123-125.
 49. Irwin, O. C., & Chen, H. P. Development of speech during infancy: curve of phonemic types. *J. exp. Psychol.*, 1946, 36, 431-436.
 50. Jersild, A. T. *Child psychology*. (4th ed.). New York: Prentice-Hall, 1954.
 51. Jersild, A. T., & Holmes, F. B. Children's fears. *Child Developm Monogr.*, 1935, No. 20, 358.
 52. Jersild, A. T., & Holmes, F. B. Some factors in the development in children's fears. *J. exp. Educ.*, 1935, 4, 133-141.
 53. Levy, D. M. *Maternal overprotection*. New York: Columbia Univer. Press, 1943.
 54. Littman, R. A., Moore, R. C. A., & Pierce-Jones, J. Social class differences in child rearing. A third community for comparison with Chicago and Newton. *Amer. soc. Rev.*, 1957, 22, 694-704.
 55. Lynip, A. W. The use of magnetic devices in the collection and analyses of the preverbal utterances of an infant. *Genet. Psychol. Monogr.*, 1951, 44, 221-262.
 56. Maccoby, E. E., Gibbs, P. K., & the Staff of the Laboratory of Human Development, Harvard University. Methods of child-rearing in two social classes. In Martin, W. E., & Stendler, C. B. (Eds.), *Readings in child development*. New York: Harcourt Brace, 1954, 380-396.
 57. Macfarlane, J. W., Allen, L., & Honzik, M. P. A developmental study of the behavior problems of normal children between twenty-one months

- and fourteen years. *University of California Publications in Child Development*. Vol. II. Berkeley: Univer. of Calif. Press, 1954.
58. Maudry, M., & Nekula, M. Social relations between children of the same age during the first two years of life. *J. genet. Psychol.*, 1939, **54**, 193-215.
 59. McCarthy, D. Language development of the preschool child. Chap. VII. In R. G. Barker, J. S. Kounin, & H. F. Wright (Eds.), *Child behavior and development*. New York: McGraw-Hill, 1943, 107-128.
 60. McCarthy, D. Language development in children. In L. Carmichael (Ed.), *Manual of child psychology*. (2nd ed.) New York: Wiley, 1954, 492-630.
 61. Menzies, H. F. Children in day nurseries with special reference to the child under two years old. *Lancet*, 1946, **251**, 499-501.
 62. Meredith, H. V. Physical growth from birth to maturity. *Rev. educ. Res.*, 1939, **9**, 47-49.
 63. Meredith, H. V. Order and age of eruption for the deciduous dentition. *J. dent. Res.*, 1946, **25**, 43-66.
 64. Miller, G. A. *Language and communication*. New York: McGraw-Hill, 1951.
 65. Miller, N. E. Studies of fear as an acquirable drive: I. Fear as motivation and fear-reduction as reinforcement in the learning of new responses. *J. exp. Psychol.*, 1948, **38**, 89-101.
 66. Miller, N. E., & Dollard J. *Social learning and imitation*. New Haven: Yale Univer. Press, 1941.
 67. Mowrer, O. H. On the psychology of "talking birds"—a contribution to language and personality theory. *Learning theory and personality dynamics*. New York: Ronald, 1950, 689-707.
 68. Mowrer, O. H., & Kluckhohn, C. Dynamic theory of personality. In J. McV. Hunt (Ed.), *Personality and the behavior disorders*. New York: Ronald, 1944, 69-138.
 69. Murphy, L. B. Childhood experience in relation to personality development. In J. McV. Hunt (Ed.), *Personality and the behavior disorders*. Vol. II. New York: Ronald, 1944, 652-690.
 70. Peatman, J. G., & Higgons, R. A. Relation of infants' weight and body build to locomotor development. *Amer. J. Orthopsychiat.*, 1942, **12**, 234-240.
 71. Piaget, J. *The origins of intelligence in children*. Trans. by Margaret Cook. New York: Int. Univer. Press, 1952.
 72. Robertson, J., & Bowlby, J. Responses of young children to separation from their mothers. II. Observations of the sequences of response of children aged 18 to 24 months during the course of separation. *Courrier*, 1952, **2**, 131-142.
 73. Robinow, T. F., Richards, T. W., & Anderson, M. The eruption of deciduous teeth. *Growth*, 1942, **6**, 127-133.
 74. Roudinesco, M., David, M., & Nicholas, J. Responses of young children to separation from their mothers. I. Observations of children aged 12 to 17 months recently separated from their families and living in an institution. *Courrier*, 1952, **2**, 66-78.
 75. Sandler, H. C. The eruption of the deciduous teeth. *J. Pediat.*, 1944, **25**, 140-147.

76. Schaefer, E. S. A circumplex model for maternal behavior *J. abnorm. soc. Psychol.*, 1959, **59**, 226-235.
77. Sears, R. R., Maccoby, E. E., & Levin H. *Patterns of child-rearing*. Evanston, Ill.: Row, Peterson, 1957.
78. Sears, R. R., Whiting, J. W. M., Nowlis, V., & Sears, P. S. Some child-rearing antecedents of aggression and dependency in young children. *Genet. Psychol. Monogr.*, 1953, **47**, 135-234.
79. Sewell, W. H., Mussen, P. H., & Harris, C. W. Relationships among child training practices. *Amer. soc. Rev.*, 1955, **20**, 137-148.
80. Shirley, M. M. The first two years, a study of twenty-five babies. Vol. II. Intellectual development. *Inst. Child Welf. Monogr.* (Ser. No. 8). Minneapolis: Univer. of Minn. Press, 1933.
81. Shirley, M. M. The first two years, a study of twenty-five babies. Vol. III. Personality manifestation. *Inst. Child Welf. Monogr.* (Ser. No. 8). Minneapolis: Univer. of Minn. Press, 1933.
82. Smith, M. E. An investigation of the development of the sentence and the extent of vocabulary in young children. *Univer. Iowa Stud. Child Welf.*, 1926, **3**, No. 5.
83. Smith, S. Influence of illness during the first two years on infant development. *J. genet. Psychol.*, 1931, **39**, 284-287.
84. Sontag, L. W., Snell, D., & Anderson, M. Rate of appearance of ossification centers from birth to the age of five years. *Amer. J. Dis. Child*, 1939, **58**, 949-957.
85. Templin, M. C. Certain language skills in children. *Inst. Child Welfare Monogr.* (Ser. No. 26) Minneapolis: Univer. of Minn. Press, 1957.
86. Thompson, G. G. *Child psychology: growth trends in psychological adjustment*. Boston: Houghton Mifflin, 1952.
87. Thompson, H. Physical growth. In L. Carmichael (Ed.), *Manual of child psychology*. (2nd ed.) New York: Wiley, 1954, 292-334.
88. Watson, E. H., & Lowrey, G. H. *Growth and development in children*. (3rd ed.) Chicago: Year Book Publishers, 1958.
89. White, Martha A. Social class, child-rearing practices and child behavior. *Amer. soc. Rev.*, 1957, **22**, 704-712.
90. White, R. W. Motivation reconsidered: the concept of competence. *Psychol. Rev.*, 1959, **66**, 297-333.
91. Whiting, J. W. M., & Child I. L. *Child training and personality*. New Haven: Yale Univer. Press, 1953.
92. Wittenborn, J. R. A study of adoptive children. *Psychol. Monogr.*, 1956, **70**, No. 408-410, 1-115.

PART



THE PRESCHOOL YEARS

III

8

THE PRESCHOOL YEARS: MOTOR AND INTELLECTUAL DEVELOPMENT

During the period from 2 to 5 years of age, personality differences among children become increasingly apparent and, by the age of 5, are well defined. Furthermore, longitudinal observations on children from the Fels Research Institute's population indicate that, by age 5, several clear-cut personality traits are established which, in some cases, persist into adolescence and adulthood.

The next three chapters will describe the physical, intellectual, and personality developments that occur during the preschool period. The critical developments during this period include (1) rapid growth of language and intellectual capacities, (2) the beginning of sex-typing and the emergence of sexual curiosity, (3) identification with parental models, (4) emergence of a superego or conscience, and (5) the initial establishment of defensive behaviors in reaction to anxiety-arousing situations.

The physical, motor, and intellectual changes of these years will be summarized first.

PHYSICAL GROWTH

By age 3, the average boy stands about 38 inches tall and weighs about 33 pounds. The average girl is almost as tall (37.6 inches), and nearly as heavy (32.5 pounds) (49). Figure 28 shows the average yearly gain in pounds and inches of boys and girls from birth to 5 years of age.

As a result of gradual increases, the average 5-year-old boy has attained a height of 43.6 inches and a weight of 42.8 pounds. At age 5, the average girl's measurements are roughly comparable, though again the boy is slightly taller and heavier (49). The child's stature at age 5 is a

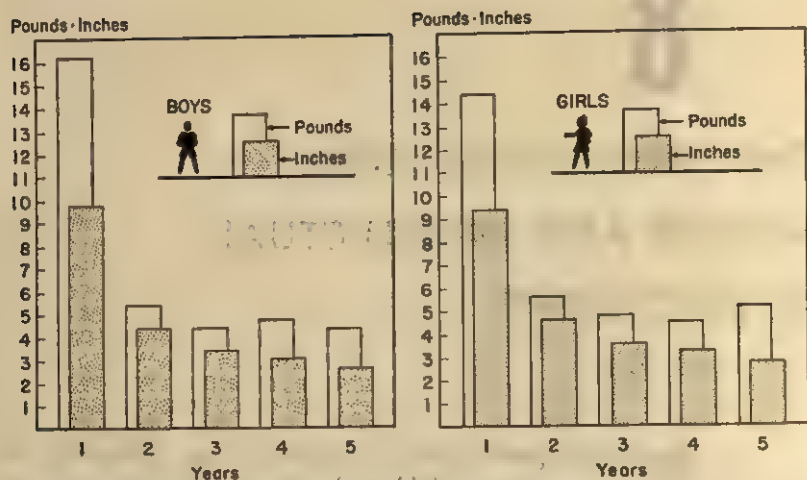


FIG. 28. Average gain in height and weight of boys and girls from birth to five years. (After E. H. Watson and G. H. Lowrey, *Growth and development of children*. Chicago: Yearbook Publishers, 1962.)

moderately good predictor of his mature height, the correlation between heights at these two ages being about .70.

During this period the child's body form is also becoming more mature. As the upper parts of the body begin to approximate adult size, their growth slows down and eventually stops, giving the lower extremities a chance to catch up by continued growth. Thus, during the preschool years, head growth is slow, limb growth is rapid, and trunk growth is intermediate (47). By the time the child reaches his sixth birthday, his body proportions are a great deal more like those of an adult than they were at age 2 (53), and his facial features are not likely to change to a marked extent.

Although the boys are only slightly heavier than the girls, there are marked sex differences in body composition, for the girls have more fatty tissue, while the boys have more muscle tissue (13, 14).

Along with these changes in body proportions, the child's skeletal, muscular, and nervous systems are becoming more mature. More and more of the cartilage in the child's skeletal system is becoming replaced by bone; the size and number of bones in the body increase, and they become harder. Between 2 and 3, the child's set of temporary teeth is generally completed, and he is adequately equipped to eat adult food.

Significant changes in muscular development also occur during this

period. Up until about 4 years of age, growth in the muscular system is roughly proportional to the growth of the body as a whole. Thereafter, the muscles develop at a faster rate, so that about 75 percent of the child's weight increase during the fifth year can be attributed to muscular development (47). Throughout this period, however, the larger muscles remain better developed than the small, fine muscles—partly accounting for the fact that the young child is more skillful in activities involving large movement than in those involving finer coordinations. Needless to say, individual differences in strength and muscular development will depend on many factors, such as the child's constitution, general health, and habits of eating, sleeping, and activity.

Other physiological changes also increase the child's endurance and enable him to participate in more strenuous activities. During this period, respiration becomes deeper and slower; heart rate also slows down and becomes less variable; conversely blood pressure increases steadily (47).

The nervous system grows rapidly in the nursery school years. For example, the child's brain has reached 75 percent of its adult weight by the end of the second year; by age 6 it has increased to 90 percent of its adult weight (21). Myelination of the nerve fibers which has already been nearly completed in the lower portions of the body, is generally completed in the higher brain centers during this period.

During these years, the child's reaction to infection changes. Infections generally produce less of a temperature increase than they did during infancy, but the duration of the illness is generally longer. Moreover, the possibility of serious heart symptoms following a disease is smaller than it was during the first 2 years of life.

PSYCHOMOTOR DEVELOPMENT

The progressive maturation of the preschool child's neuromusculature lays the foundation for increased skill in psychomotor activities. Learning plays an increasingly greater role in these improvements, but as with younger children, expansion of the repertoire of motor skills must await neuromuscular development.

By age 3, the persisting traces of infancy in the child's motor behavior have about disappeared (15).

He runs with more smoothness, accelerates and decelerates with greater ease, turns sharper corners, negotiates sudden stops. Can go upstairs unaided alternating his feet. He can jump down from the bottom tread with both feet

together, whereas the child aged two leaps down with one foot leading. Three can jump upward with both feet as much as twelve inches . . . he can stand on one foot for a precarious second or more (15, 41). . . . In the eyes of the three-year old child himself, his psychomotor development has one especially significant ramification—he is now ready for a tricycle, instead of a “mere kiddycar with its primitive propulsion” (15, 42).

There are other indications of the average 3-year-old's expanding psychomotor development. He can build a tower of 9 or 10 cubes as opposed to the 2-year-old's 6 or 7. In drawing, his strokes are becoming better defined, less diffuse, and less repetitive. He can fold a piece of paper vertically or horizontally, but still not diagonally, even with the aid of a model (15).

By 4, the child's psychomotor skills have increased still further. He can run more smoothly, and is better able to break up the regular rhythms of his stride. Unlike the 3-year-old, who usually is able merely to jump up and down, the 4-year-old is able to make moderately good running and standing broad jumps. He can also skip, though he is still unable to hop. His new athletic feats are partially a function of greater independence of his leg musculature:

Here, as elsewhere, the principle of individuation is at work. There is less totality in his bodily responses; legs, trunk, shoulder, arms react somewhat less in unison. This makes his joints seem more mobile. Where at two and three, he would merely toss or hurl a ball in a propulsive manner (with much torso participation), he can now swing back a more independent arm and execute a strong, over-hand throw (15, 47).

The average 4-year-old has gained sufficient spatial orientation and precision of movement to be able to trace on paper a diagonal-shaped pathway between parallel lines a centimeter apart, and can at last fold a piece of paper diagonally. He is still unable to copy a diamond from a model, but can draw a circle and a cross.

By 5 years of age, the average child has a fairly mature sense of balance, which is reflected in a more self-reliant abandon in his motor behavior. While still unable to hop, he skips and jumps more smoothly. Fine movements have also become better differentiated. Again according to Gesell, “he can pluck a dozen pellets one by one and drop them deftly into a bottle in about 20 seconds, typically with a preferred hand. In drawing, while the five-year-old still has some awkwardness in handling diagonal lines, he is capable of straight strokes in all directions; can copy a square and a triangle (though not a diamond); and can at last do a recognizable picture of a man” (15, 52).

INTELLECTUAL DEVELOPMENT

Language

Like most complex skills, language is difficult to learn and cannot be mastered all at once. It will be recalled from Chapter 4 that language has both meaning and structure and that the units of language include phonemes (basic sounds), morphemes (simplest meaningful sounds), morphological rules (rules which govern the construction of words), and syntactical rules (rules which govern the construction of sentences from words) (3). Mastery of the latter two categories proceeds at a rapid rate during this period, enabling the child to produce seemingly endless strings of new sentences. The proper use of tenses, parts of speech, and the appropriate sequence of adjectives, nouns, verbs, and adverbs in sentences are usually acquired without direct teaching. Thus a child who has never spoken the word "refrigerator" may use it correctly the first time he places the word in a sentence. Unfortunately, the way in which the child learns the rules that govern the correct placement and usage of words is still a mystery.

Most of the studies of language development in the preschool child have centered on (1) vocabulary size, (2) length and complexity of sentence, and (3) articulation (i.e., degree to which the child's pronunciation of words approximates adult form).

Language Skills

In the 1920s, the vocabularies of a large group of preschool children were studied by means of tests in which pictures of objects were presented (39). The child was credited with "knowing" a word if he named the object or answered questions which required understanding the word involved. Although, according to this test, the average child of 2 had a vocabulary of only 272 words, by the age of 5 his repertoire of available words had increased to well over, 2,000.

A recent investigation of the language skills of 480 children between 3 and 8 years of age yielded several major findings, some of them different from those of earlier studies (44). First, children tested in the 1950s had larger vocabularies than children of 30 years ago, and they talked in lengthier clauses and sentences.

Figure 29 compares the average number of words contained in a typical sentence for children studied in 1957 (44), in 1930 (27), and in 1937 (9).

The increase in sentence length and vocabulary size during the last

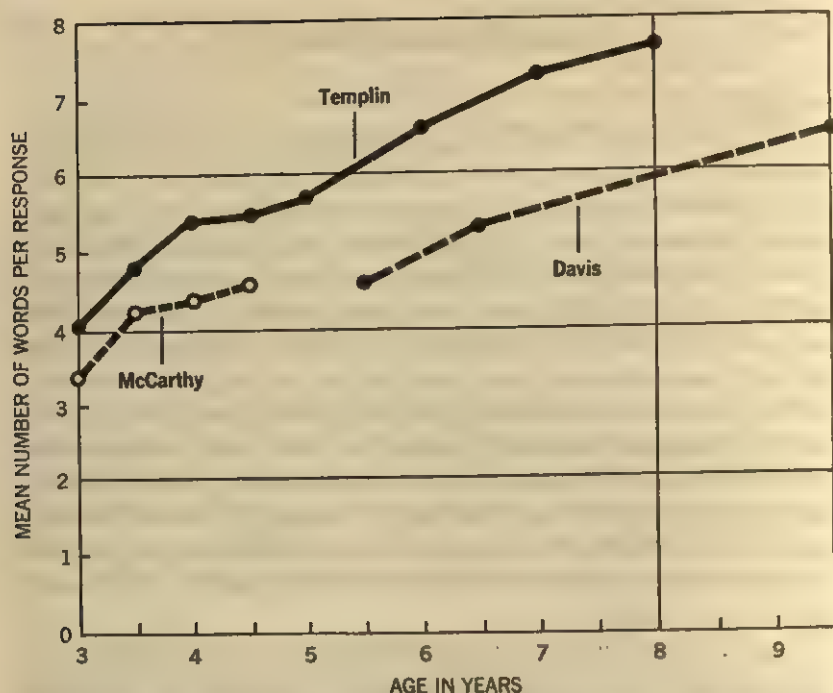


FIG. 29. Comparison of mean number of words in 50 remarks by age as reported by McCarthy, Davis and Templin. (From *Certain language skills in children: their development and interrelationships*, by Mildred C. Templin (*Child Welfare Monograph Series*, No. 26). University of Minnesota Press, Minneapolis. Copyright 1957 by the University of Minnesota.)

two decades is not easy to explain. McCarthy suggests that it may be due to

...the advent of radio and television, fewer foreign born and bilingual children, the rise of nursery schools affording more opportunities for language stimulation outside the home for the formerly underprivileged groups of children, more leisure time for parents to spend with their children, and better economic conditions allowing parents even in lower income brackets to provide more stimulating environments for their children (29, 15).

In contrast to the findings of some earlier investigations, no dramatic or consistent sex differences in language development were discovered. Girls tended to excel slightly in articulation skills, while boys attained slightly higher scores in vocabulary level and word knowledge.

There were, however, marked social-class differences in all phases of

language ability. Children from lower-class families, in comparison to those from upper-class homes, had lower vocabulary scores, less advanced sentence structure, poorer sound discrimination, and poorer articulation.

It will be recalled that infants of working-class families *vocalized less* than those from middle-class homes. Thus, from age 1 through age 5 upper-middle- and upper-class children are superior in all aspects of language behavior. It is, therefore, not surprising that these children do better on IQ tests, since standard intelligence tests are heavily weighted with language skills.

Increases in vocabulary size or sentence length are only one basis for assessing the child's increased capacity to communicate. Between the ages of 2 and 5 he not only acquires more words, but also learns to use them far more efficiently and flexibly. As the child advances through the preschool years, he talks more and his speech becomes more comprehensible, better articulated, and more complex in terms of grammatical structure.

The 2-year-old child is at an early sentence stage, characterized by a predominance of nouns and a lack of articles, auxiliaries, verbs, prepositions, and conjunctions. This stage gradually gives way to the short-sentence stage, which consists of sentences 3.5 to 4.5 words in length and having the same characteristics as the preceding stage, but to a lesser degree. Inflections have not yet been mastered, and only one or two sentences out of fifty are compound or complex. At about 4 years, the child begins to enter the complete sentence stage, consisting of six- to eight-word sentences and "characterized by greater definiteness and complexity, as shown by an increased use of relational words and a fairly good mastery of inflections" (28, 552).

Different areas of language develop at different rates (52). For example, the greatest increase in articulation proficiency occurs between 3 and 3½ years of age, and by the age of 8 the child's pronunciation has attained essentially mature form. As for accurate grammatical usage, the 4-year-old's organization of subjects, predicates, and adjectives is remarkably accurate, and by age 10 is of mature form. Vocabulary level, on the other hand, continues to increase into adulthood.

The following verbatim excerpts (supplied by Colin Fraser) from the speech of some typical children illustrate some of the major changes that occur between 2 and 6 years of age—increased length of utterance, increased use of varied parts of speech, increased intelligibility, more sophisticated grammar, increased use of speech for social interaction, and decreased tendency to imitate an immediately preceding adult utterance.

Mary: 2 years old—playing with toys in presence of mother and other adults.

The rug
 The pretty rug
 The rug
 Rocking chair (repetition of adult utterance)
 Table
 Table
 That Druie pillow
 That Druie dish
 Dish
 Dish
 Book fell down (repetition of adult utterance)
 Fruit
 Grape
 Doggy tired
 No
 Top
 That going (repetition of adult utterance)
 The book fall down
 Want hankie
 That pretty (repetition of adult utterance)
 Other side
 Oh, other side
 Oh, other side

Jane: 3 years old—playing with toys in presence of mother and other adults.

Hey, I found Captain Kangaroo
 Captain Kangaroo (response to a question)
 Mummy?
 Mummy?
 Can I have this?
 Yeah (response to a question)
 What shall I fix with this?
 I think you can fix this
 I think
 It works with this
 For to lean a thing up here (response to a question)
 Hey, Mummy
 What did you found?
 We'll play with 'em
 Won't it be fun to play with these?
 What? (response to a question)
 And I was in the cage
 Yeah (response to a question)

You line the red ones up and you line the green ones up and I line these up
Hey, what are we goin' make?
And then now I will line all mine up like this
I show you how to play animals
Hey, this is my dollie
And these all small ones

The dramatic differences between these two samples of speech indicate the degree of growth that occurs in language during this short period.

Environmental Influences on Acquisition of Language

Since language responses are learned, the laws of learning may help explain the differences among children in language proficiency. The stronger the motivation to use language, and the more effective the rewards that speech brings, the more developed language behavior should become. The available research evidence indicates that children from homes in which language is encouraged and rewarded do, in fact, develop more proficient language skills. For example, institutionalized children, who are not rewarded frequently or consistently for their speech responses, were found to be handicapped in language development (17, 18). Compared with preschool children who had lived in foster homes, those reared in an institutional environment displayed marked deficiencies in all areas measured—including speech sounds, intelligibility, and level of language organization (17, 18).

It has also been found that a mother's concern with language development during the first 3 years of life was correlated with the child's IQ at age 3 (30). Since the mother usually spends more time with the child than the father during the preschool years, the mother should exert a greater influence than the father on the child's early intellectual development.

Another factor related to language acquisition is the degree to which the child's language leads directly to rewarding and gratifying goal states. Some parents insist that their 3-year-old begin to ask for "the cookie" by name rather than pointing to the cookie jar and saying "uh-uh." This technique of making the acquisition of desired goals dependent upon the use of speech is a clear example of how parental behavior influences language learning. Peter, one of the two boys whose case histories are given in the text (see p. 224), was grossly retarded in speech development at this age, partially because his mother consistently anticipated Peter's needs and did not wait for him to ask for what he wanted.

Twins and triplets are slower in speech than singletons, while of all

groups studied, only children—especially only girls—are the most advanced in all aspects of language development (8, 9, 10, 11, 12). Children from bilingual homes, in general, have greater difficulty than those from monolingual homes in learning language (28, 40). However, if the children from bilingual homes are strongly encouraged to master the language taught in the school, the potentially deleterious effects of a bilingual atmosphere are likely to be reduced.

Twins and triplets are probably not as highly motivated as other children to learn speech responses, since many of their needs (particularly social needs) are satisfied without verbal communication. Only children have great advantages in this respect, for they generally come from "environments . . . affording greater association with adults, broader experience, and greater opportunities for practice in the use of language under optimum conditions" (28, 589).

Stages in the Child's Conceptualization of His World

Thus far we have emphasized development of vocabulary and correct pronunciation as ways to obtain desired goals. But language is also the medium by which the child comprehends his world. The continuing growth of understanding and categorization of the environment proceeds unnoticed and rather undramatically; yet it is of the utmost importance for the child's total intellectual and emotional development.

INCREASE IN SPECIFICITY OF LANGUAGE. The child's use of language to describe and classify the world undergoes two kinds of changes during the preschool years. On the one hand, words increasingly come to stand for specific objects and events. The 3-year-old is apt to use the word "dog" to stand for all animals with four feet, or to call all vehicles with wheels "cars." Heinz Werner (52), a psychologist interested in the structure of children's thoughts and language, described this kind of language usage in the 3-year-old as *undifferentiated* and *syncretic*. By *syncretic*, Werner means using a word or phrase to stand for a combination or fusion of several concepts. The child may use the word "eat" to refer to food, to the process of eating, or to being fed. With greater maturity, his use of words becomes differentiated so that a word or phrase now applies to a specific object or event. At age 5 the words dog, car, or eat are usually applied with some of the specificity that characterizes adult language.

INCREASES IN ABSTRACT QUALITY OF LANGUAGE. Every language has words that stand for specific, concrete objects (dog, cat, banana, milk, car, truck) and other words which stand for classes of objects that have something in common (animals, food, vehicle). These latter words are

more *abstract* than the words dog, milk, or car. An increase in the accurate use of abstract words is a second characteristic of the language changes that occur during this period.

Thus, two language developments are proceeding simultaneously. On the one hand, the child is learning to use specific words for specific objects. He restricts his use of the word "cow" to relevant objects and does not apply it to all farm animals. On the other hand, he is learning abstract words that represent a common property held by a group of dissimilar objects.

To illustrate, he learns that the word "animal" applies to dogs and cats as well as to fish and caterpillars. The student should realize, however, that the child's use of a word is not always an accurate index of his understanding of the word (i.e., by understanding we mean the definition most adults use and accept). One 5-year-old may use the word "money" in its abstract sense because he realizes that objects called nickels, dimes, and dollars are concrete members of this class "money." A second child uses the word money, but only to mean pennies, because that is the only context in which he understands that word. It is not uncommon for some mothers to use abstract words rather than concrete ones in pointing out objects to their 3-year-old children. The mother may tell her 3-year-old to "use your silverware when you eat." In this context, the word *silverware* may refer to a particular spoon. If the child should say the next day, "Give me silverware," he is probably not using this word in the abstract sense.

Conceptual development is roughly measured by the number of abstract concepts for which the child has acquired the labels for the subcategories making up the abstract concept. From age 3 to 4, concepts are typically defined in terms of their actions or functions (e.g., dogs are things that bark; cows are things that give milk; fire is a thing that burns you). Beginning with school entrance, the child gradually begins to define or conceptualize objects in terms of abstract labels (dog is an animal) or descriptive properties (fire is hot and red).

In sum, the growth of the language system involves learning (1) the specific instances or objects to which a word applies, (2) the superordinate (i.e., more abstract) category in which the word belongs, (3) the grammatical properties of the word (i.e., where it belongs in spoken or written utterance), and (4) the descriptive properties of objects and events. All of these aspects of language are being acquired during the preschool years at an extremely rapid rate.

MEDIATED GENERALIZATION. As the acquisition of abstract words proceeds the child begins to categorize and react to objects and events on

the basis of the abstract label he applies to them. These abstract labels become the pivotal point for the process of mediated generalization described in Chapter 5. In mediated generalization, the child applies the same label to two or more objects and, consequently, begins to treat the objects similarly. For example, the 4-year-old child has learned to apply the abstract word "candy" to certain stimuli. Since candy stands for something good to eat he is apt to behave in a predictable way toward all things he labels candy. When an adult introduces a new object the child has never seen and says, "Have a piece of candy," the child will transfer the behavior he has learned for the word candy to this novel stimulus. In all probability he will take this new object and pop it into his mouth. Thus, mediated generalization is usually adaptive and allows the child to behave appropriately to new stimuli on first contact.

However, mediated generalization is not always so adaptive. For example, a 5-year-old girl who has learned the label "boy" will apply this word to a diverse group of individuals. The objective or physical bases for similarity among these objects include type of haircut and dress. Let us suppose that one of the child's first contacts with boys was with Johnny Smith, who was very aggressive toward her. We would expect her to learn to avoid Johnny Smith and to become anxious in his presence. However, the anxiety and avoidance responses associated with this particular boy may become attached to the class of objects called boys. This occurs because parents are apt to say to the child, "You stay away from *that boy* if he hits you"; or the child is apt to report to the mother, "The *boy* next door hit me." When the little girl meets a new boy, Bobby Jones, it is likely that the responses of anxiety and timidity will again be elicited. This timidity is not based on anything the new boy has done. Avoidance behavior may occur because the girl has implicitly applied the label "boy" to the new stimulus, Bobby Jones. The child learns responses to his classifications of the world, and behaves in accordance with the meaning he attaches to verbal classification. These early labels are not transient, and have a directive influence on the child's future behavior.

THE LANGUAGE LABELS "GOOD" AND "BAD." The child's use of the abstract words "good" and "bad" are a function of at least two factors: whether an object, event, or action causes pleasure or pain; and whether it is socially encouraged or prohibited. Moreover, the preschool child has a moderately clear conception of good and bad behaviors. Radke asked a group of children what is a good boy or girl and what is a bad one (37). Table 1 summarizes the answers she obtained.

To disobey mother, to hurt people or destroy objects is bad; to be kind

TABLE 1. Children's Standards of Bad and Good Behavior

	Percentage of Responses		
	Girls	Boys	Both
Bad Behavior			
Doesn't do what mother asks	28	7	18
Doesn't do what other people tell him	0	14	6.5
Does overt acts of violence (that is, spits, scratches, snatches, hits, breaks windows, throws mud, and so on)	47	55	51
Cries, says bad words, is cross, isn't nice	12.5	17	15
Makes mother sad	0	7	3
Miscellaneous and doesn't know	12.5	0	6.5
Good Behavior			
Helps mother (specific items such as dusts, washes, cleans, and performs other household tasks)	20	40	29
Takes care of own routine (that is, dresses self, goes to toilet, picks up toys, cleans up his mess, and so on)	13	6	10
Plays (that is, plays gently with dolls, colors, and so on)	28	6	18
Does nice, kind things (that is, does good things, does things for people and so on)	13	30	21
Obeys mother (that is, does what mother says, and so on)	8	6	7
Doesn't destroy or break things (that is, doesn't break records, and so on)	3	3	3
Stays out of mother's way (that is, doesn't bother mother, and so on)	3	6	4
Miscellaneous and doesn't know	12	3	8

SOURCE: Marian J. Radke, *The Relation of Parental Authority to Children's Behavior and Attitudes*. Copyright 1946, by University of Minnesota.

and helpful is good. To cause pain to others is bad; to be kind and give nurturance is good. Since the child labels antisocial acts as bad he is also likely to label people who initiate these acts as bad. Thus if the child is called "a pest" or "destructive" by his family he may begin to regard himself as bad. In this way a negative self-concept can be fostered. In essence, the child's self-concept is determined by the language labels attached to him by others and by himself. If he is called "smart," he will begin to believe this and in challenging situations he will behave as if he were "smart." If he is called "bad," he will act in ways that are congruent with this label. That is, he will implicitly label himself as bad and will antici-

pate that others will react toward him as if this were, in fact, one of his characteristics.

Stages in Language Communication

Some of Piaget's studies of the functions of language in the child's life were concerned with age changes from egocentric to more sociocentric (socially oriented) speech. In egocentric speech, according to Piaget "the child does not bother to know to whom he is speaking or whether he is being listened to. He talks either for himself or for the pleasure of associating anyone who happens to be there with the activity of the moment. . . . He does not attempt to place himself at the point of view of his hearer" (32). In socialized speech, on the other hand, the child "addresses his hearer, considers his point of view, tries to influence him, or actually exchanges ideas with him." (32).

In the egocentric stage, which can last to age 5 or 6, the child finds it difficult to put himself in the place of another person. He cannot assume the point of view or perspective of another child or adult, and his speech shows a lack of concern with being understood. Two-and-one-half-year-olds will appear to be talking to each other, but their speech is not reciprocal. One of the authors recalls a conversation between a 3½-year-old girl and a playmate as they met early one morning. The first said, "My sister has a birthday today," to which the second replied, "My doggie wet the bed last night."

In one of Piaget's studies, 20 children between the ages of 2 and 11 were observed during free activity at the Rousseau Institute in Switzerland, and their verbalizations recorded. Analysis of these data showed that as children grew older, their speech became less egocentric and more sociocentric.

Undoubtedly the amount of egocentrism in young children's speech varies with the situation in which the responses are recorded and with the personality characteristics of the children being observed. Moreover, "even the highest estimates of egocentrism rarely exceed 50 percent, and hence the enthusiastic statements one occasionally finds regarding the *predominance* of egocentrism in the speech of young children are quite unfounded" (28, 570).

This change from egocentric to sociocentric speech must in part reflect the increasing socialization of the child. As he grows older, he finds that socially oriented speech is rewarded more frequently and more strongly and commands more attention than egocentric speech. The latter type of speech is probably being discouraged during this time and hence becomes less prominent.

Language Difficulties in the Preschool Years

During the preschool years, the child often appears to have a hard time saying what he wants to say. Repetitions in speech are frequent, children between 2 and 5 repeating approximately one out of every four words, either in whole or in part (6, 7). Boys tend to repeat more than girls, and in both sexes, amount of repetition decreases with increasing age. It has been reported that 85 per cent of all children 3 to 4 years of age show a hesitation in speech (26).

Such hesitations and repetitions may be attributed to the status of the child's language development at this time. The child is building up a hearing vocabulary faster than he can put it to use himself in connected discourse, and he is frequently forced to stall for time while he struggles with the proper mode of expression.

Speech difficulties may be regarded as normal during the preschool years. If the parents become tense and upset about their child's speech at this time, they are likely to convey their anxiety to the child and to lay the groundwork for real and chronic stuttering and stammering. One authority, Johnson (24), believes that children become chronic stutterers as a consequence of being so labeled by anxious parents. Other authors, particularly the more psychoanalytically oriented, tend to view stuttering as a reflection of more basic emotional tensions in the child, usually related to difficulties in parent-child relationships (4).

Available research evidence supports the hypothesis that emotional stress increases hesitations and repetitions in speech during the preschool years. For example, several kinds of situational pressures—including excitement over activities; attempts to direct a peer's activities or to gain attention; and coercion by the teacher to change his activity—excite increases in speech hesitations (6, 7).

Earlier we reviewed studies of the influence of parent-child relationships on the child's early speech development. There is also impressive clinical evidence that language difficulties, particularly stammering and stuttering, during the preschool years are related to social and emotional adjustment.

One little boy began to stutter when a new baby sister was brought home from the hospital. He didn't show his jealousy outwardly. He never tried to hit or pinch her, he just became uneasy. A girl of two and one-half began to stutter when the maid who had been with the family a long time left and a new maid took her place. In two weeks when she became friendly with her, the stuttering stopped for the time being. When the family moved to a new house she was quite homesick and stuttered again for a period. Two months later the father was called into the Army. The family was upset, and the little girl started again. Mothers report that their children's stuttering is definitely worse when the

mothers themselves are tense. I think children, who, during too much of the day are being talked to and told stories, urged to talk and recite, shown off, are especially liable. Stuttering may start when a father decides to be stricter in his discipline (42, 273).

Fortunately the vast majority of children who stutter between 2 and 3 and 4 years of age outgrow it in a few months. Since this speech difficulty seems to be related intimately to emotional stress, parents should attempt to find the sources of the child's disturbance. Parental anxiety about stuttering or urgent, high-pressure attempts to correct the child's speech may only serve to aggravate the problem.

If you think you have been talking at him or urging him to talk too much try to train yourself out of it. Play with him by *doing* things instead of always *talking* things. Is he having plenty of chance to play with other children with whom he gets along easily? Does he have toys and equipment enough, indoors and out, so that he can be inventing his own games without too much bossing? I don't mean that you should ignore or isolate him, but when you are with him be relaxed and let him take the lead. When he talks to you, give him your attention so that he doesn't get frantic. If jealousy is upsetting him, see whether you can do more to prevent it. Stuttering in most cases lasts a number of months with ups and downs. Don't expect it to go right away, be content with gradual progress (42, 274).

Perceptual Development

Perception refers to the individual's organization and initial interpretation or categorization of what he sees, hears, touches, smells, or feels. Since initial organizations and interpretations change as a function of learning, many important changes in perception occur as the child develops.

DIFFERENTIATION IN VISUAL PERCEPTION. The way in which the child organizes what he sees is one of the primary processes that undergo change. For example, the 5-year-old perceives the stimuli that comprise a typical kitchen as a set of discrete objects (sink, stove, table, chairs, refrigerator). The 1-year-old has not yet differentiated (or separated out) these discrete elements and the kitchen is perceived, to a much greater degree, as a conglomeration of different colors and shapes. This difference illustrates an important principle of perceptual development: *with increasing age, the child tends to differentiate stimuli in his environment.*

ACQUIRED DISTINCTIVENESS. The fact that objects are given different names facilitates their being perceived as separate objects. The fact that a sink and stove, although both are white and shiny, are called by different names causes them to be perceived differently. Thus, a second

principle of perceptual development states that *stimuli become more distinctive when specific language labels are applied to them*. Once the child learns the words "red" and "pink," he is more likely to notice (i.e., perceive) the differences between red and pink material or different sunsets than if he had learned neither word or only one of them. Through learning, labels become attached to differentiated aspects of sensory experience. This learning predisposes the child to attend to the attributes to which the labels refer. These two basic principles of perceptual development—*differentiation of stimuli* and *attaching language labels to specific stimuli*—are associated with three more specific perceptual processes that develop during the preschool and early school years:

WHOLE-PART PERCEPTION. The 3-year-old child has a tendency to categorize and react to an entire stimulus, rather than to label its separate parts. *This is particularly true of unfamiliar or nonmeaningful stimuli*. Thus, if a 4-year-old child is shown the design in Fig. 30, and asked to describe what he sees, he is apt to say, "A box with lines" or "A design." A 7-year-old is more likely to mention the black circle, "There's a black circle and some lines" or "There's a design with a black hole at the bottom."

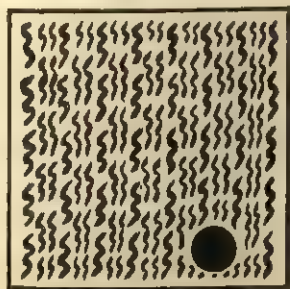


FIG. 30.

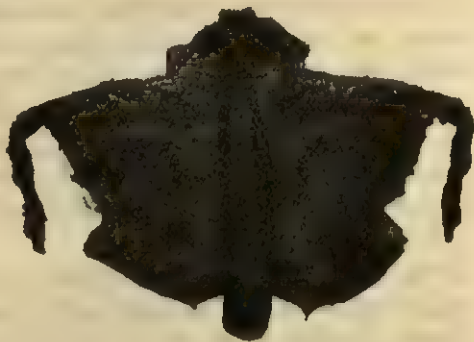


FIG. 31.

If the stimulus is an ambiguous ink blot, the 5-year-old is likely to attend to the whole, and to ignore the parts of the stimulus. Thus, to the ink blot shown in Fig. 31 the 4-year-old child is apt to say "dirt" or "rock" or "ink." The 8-year-old child is more apt to say, "Butterfly with the wings and head" or "Man with arms and no feet." The older child attends to and labels *component parts of the stimulus* to a greater degree than the younger child.

Of course, if the child has not yet learned the word that applies to an entire stimulus, but has learned labels for the parts, he may name the parts of the stimulus. Thus, if a 4-year-old child is asked to describe a landscape scene with trees and cows in the foreground he may say, "Trees, cows, grass," because he has not yet learned the words "landscape" or "country scene" and because the trees and cows have salience for him. We might formulate a tentative rule about the child's categorizations during the period 4 to 7 years of age. If the internal parts of a stimulus are not distinctive (as in an ink blot), the older child is more likely than the younger to differentiate the stimulus. Moreover, if the younger child has a popular label to apply to the whole stimulus, even though the internal parts might be distinctive, he will be more likely than the older child to categorize the whole, rather than the parts. It is only when the younger child has difficulty labeling the whole, and does not have any difficulty with the parts, that he will attend to the latter rather than the former.

The young child's preference for reacting to the whole stimulus rather than the parts interferes with his ability to *notice* changes in the internal parts of a stimulus (38). Children were shown initially complete outlines of objects, but with succeeding exposures, inner detailed parts were added, and the child had to specify which internal part had been added. The younger children (age 4) were much inferior to 8-year-olds in recognizing the parts that had been added to the picture. With age, the child became increasingly more capable of attending to both the *whole* and the *part* (38). Since most problems require the separation of parts from the whole, the young child is at a disadvantage in many problem situations.

PERCEPTION OF SPATIAL ORIENTATION. The young child generally fails to pay much heed to the *spatial* orientation of objects. That is, he often ignores whether objects are oriented to the left or right; up or down. Thus young children have difficulty telling the difference between



and (i.e., if the child is only rewarded for picking one of these stimuli, he will often confuse them and behave as though he *perceived* them to be the same). Moreover, some 5-year-olds have great difficulty detecting the difference between a shape and its mirror image (e.g., R vs. Я ; B vs. Ɔ).

Only with age does the child come to regard the spatial orientation of objects as a relevant dimension. This advance is probably due, in part, to

the child learning the labels "right" and "left," "up" and "down," and, therefore, learning to attend to these aspects of the environment.

AMOUNT OF INFORMATION NECESSARY FOR RECOGNITION. Compared with older children or adolescents, the 4-year-old child requires more *clues* in order to recognize an object (54). Thus, if a 10-year-old is shown a series of dots as in Fig. 32, he is likely to perceive it as a rabbit's face. The 4-year-old will require many more dots to be filled in before he recognizes

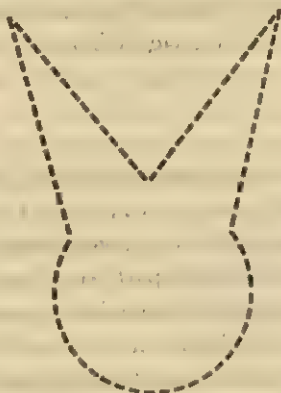


FIG. 32.

this pattern as resembling a rabbit. With age, *less* stimulus support is necessary to allow the child to recognize familiar objects. In effect, the young child requires a great deal of extra information in order to come to the same perceptual conclusion as that arrived at by the older child with less information.

These are some of the perceptual processes that develop during the preschool and early school years. Little has been said about perception of sound, touch, or smell because most of the research has involved visual perception. However, it is reasonable to assume that similar changes occur in other sensory modalities. That is, the child learns to differentiate streams of speech into individual words. If the mother calls the baby in the family "Little Bobby," the 4-year-old child behaves as if these two words were one; and if asked what his baby brother's name is he will say, "Little Bobby." With age, he perceives this pattern of sounds as *two discrete* units.

It should be obvious that what is perceived (or experienced via sensory information) is very much related to the language labels the child has

acquired. In fact, some social scientists believe that the language of a culture exerts a powerful influence on the way the world is experienced. For example, the Eskimos have several words to describe snow (i.e., depending on whether it is composed of large, wet flakes or small, powdered ones), and these specific words probably lead the Eskimo child to perceive these different aspects of snow; while American children are apt to perceive only one kind of snow.

The line between perceptual and conceptual activities is thin indeed. Many of the child's—and for that matter, the adult's—reactions to experiences are governed by the language labels that are applied to these experiences.

Intellectual Development

Just as it is somewhat artificial to separate perceptual and language (i.e., conceptual) development, it is artificial to separate perceptual and language behavior from intellectual development in general. For perception and conception are essential parts of all intellectual activity. Intellectual ability is most broadly defined as the ability to adapt to the environment, and intellectual growth is characterized by (1) acquisition of language and number skills and the rules that govern the use of these symbols; (2) increased memory ability; (3) differentiation of perceptual experience; and (4) learning the rules of logic and how to apply them to reason out problems. There are, of course, several specific principles that describe limited aspects of intellectual growth (e.g., the child's perception and concepts become less global and more differentiated with age; the child's language becomes more abstract with age). But there is no comprehensive theory that accounts for most of the developmental changes in the intellectual activity of the child. As mentioned earlier, Jean Piaget has done the most stimulating and extensive investigation of the detailed processes involved in intellectual activity. Some of the basic ideas in his theorizing are reviewed here (22, 32, 33, 34, 35, 36).

ASSIMILATION VERSUS ACCOMMODATION. According to Piaget, intellectual behavior is always involved in a person's adaptation to his environment. This adaptation is a result of the interaction between the processes of *assimilation* and *accommodation*. Assimilation refers to the fact that the child relates what he perceives to his existing knowledge and understanding. In assimilation, the individual tries to retain his present comprehension of the world intact, even if new perceptions or new knowledge must be distorted in order to fit neatly into his existing view of the world. An example of assimilation would be the child's interpretation of a novel

stimulus, for example, a flying squirrel. If in his comprehension, all flying objects are classified as birds, the child may perceive the squirrel as more birdlike in shape than it really is, and regard it as a bird. He may fail to notice that the animal has no wings, and no feathers, and does have four legs. These perceptual distortions occur as the child *assimilates* the stimulus of the flying squirrel into the category "bird."

At a more complex level, the child who had never seen a dog bite a child might distort such a scene, interpreting it as an affectionate licking gesture. The perception of the dog biting a child does not fit (i.e., is not congruent with) his conceptualization of dogs and their relation to people.

Accommodation is the reverse of assimilation. In accommodation the child adjusts his conceptual understanding to fit new perceptions. That is, the stimulus is subject to minimal distortion, for the person uses his reference system so that it is congruent with external reality. To illustrate, suppose a 4-year-old, who expects to see girls dressed in skirts and boys in pants, sees a child with both long hair and pants playing with a doll. He will probably "accommodate" to the stimulus and perceive this new person as a girl, thus altering his conception of the world to take account of the new experience. One of the clearest instances of accommodation occurs when the child faithfully imitates the behavior of a parent. For in this case he is attempting to perceive the behavior of another with maximal accuracy and alter his own behavior so that it matches that of another. Accommodation and assimilation are present in all perceptual experiences and intelligent behavior, and there is always a balance between the two processes.

Piaget's Stages of Intellectual Behavior

As noted in Chapter 4, Piaget delineates two basic eras of intellectual growth: the *sensorimotor* stage from age 0 to 2 and the stage of *conceptual intelligence* from age 2 to maturity. The era of *conceptual intelligence* is, in turn, broken down into four developmental stages: *preconceptual* (ages 2-4), *intuitive* (ages 4-7), *concrete operations* (ages 7-11), and *formal operations* or mature conceptual thought, which begins around 11 years of age (22).

During the stage of sensorimotor intelligence (ages 0-2), symbolic activity is minimal. The infant reacts initially to each object on the basis of its physical characteristics, rather than its symbolic meaning. A nipple is an object of a particular color and shape, but is not conceptualized as a symbol of food. Although the 6-month-old child may have learned anticipatory sucking movements at the sight of the nipple, there is no reason to

believe that the child has applied a symbolic label or image to this stimulus.

The stage of *preconceptual thought* marks the beginning of symbolic activity; the first time that the child's reactions are based not simply on the physical nature of the stimulus, but on its meaning. The major change that occurs during Piaget's successive stages is that the child becomes increasingly more capable of dealing with problems through symbols and thought. With age, his reactions are dictated less by his immediate perceptual experience, and more by his symbolic representations of the situations—by the labels he attaches to objects and events.

During the stage of *preconceptual thought*, a stimulus begins to take on meaning and the child uses stimuli to stand for, or represent, other objects. A girl can behave toward a doll as though it were a child; toward a stick as though it were a gun. Objects in the world now become representatives of classes of things.

At about age 4, the slightly more complex stage of *intuitive thought* emerges. The child now begins to construct more complex images and more elaborate concepts. However, at this stage, the child's understanding of concepts is still based largely on what he sees. Typically his reaction or comprehension of an object or situation is based on a single salient perceptual aspect of the stimulus. For example, if he is shown two cylindrical jars of identical shape and size, both of which are half-full of beads, the child will acknowledge that both jars contain an equal number of beads. However, if the contents of one jar are emptied into a tall, thin jar, the child of 4 years will say that the tall, thin jar now contains more beads than the cylindrical one. Some children verbalize that the tall jar has more beads because it is higher. Thus, the child's comprehension of the abstract concept *amount* or *quantity* is highly dependent on one perceptual aspect of the stimulus; in this case, the *height* of the jar. During the *intuitive stage*, the child views the height of the jar as related to the quantity of beads it can hold and he bases his conclusions on this perceptually dominant characteristic. It is as if he *intuitively* equates the height of a container, with the amount of material it can hold—as if the child had learned an equation that read—tall = big = more.

Somewhere between 5 and 7 years of age (depending, in part, upon the child's intelligence), the child suddenly becomes aware of the fact that the amount of beads remains constant regardless of the changes in the shape of the container. If one asks the child why the tall, thin jar has the same amount of beads as the cylindrical one, he may say something like, "Well, this one is taller, but the other one is fatter." This verbalization is

the child's crude attempt to indicate an awareness that the *width* of one container compensates for the *height* of the other. At a later age, the child will give a more sophisticated reason for his belief that both jars contain an equal amount of beads. He will say, "If you poured the beads from the tall jar back into this one (i.e., the cylindrical), then it would be the same." Through this verbalization the child indicates a recognition of the fact that a change in containers is arbitrary and irrelevant to the quantity of the enclosed beads. The child indicates that a change in the manifest appearance of a quantity of beads is *reversible* for one *can restore* the original situation (i.e., two cylindrical jars that perceptually appear to have equal quantities of beads).

When the child consistently acknowledges that a certain quantity or amount is a constant that cannot be changed by a change in the shape of a container, he begins his passage into the next stage of thought—*concrete operations*.

Another example of the preschool child's inability to free himself from basing his conclusions on what is perceptually dominant is seen in a study of size discrimination (43). The child was rewarded if he picked the *middle-sized* member of three objects that varied in size. After he had learned to pick the middle-sized objects, he was presented with three new stimuli which were much different in size from the three used in the original training. The preschool child did not select the middle-sized member in this second problem because he had not yet grasped the concept of "intermediate size," independent of the specific sizes of specific stimuli.

The stages of concrete and formal operations (age 7 on) are more similar to adult thought. When the child reaches these stages, he is capable of thinking about problems without being fooled by the perceptually salient aspects of objects or requiring concrete objects to help him reason. Moreover, adult logic is increasingly applied to problems. These stages will be discussed in more detail in a later chapter.

The child of 7 thinks differently from the child of 4, using different rules and somewhat different concepts. Thought does not develop as do height and weight, which merely increase in magnitude with age. The development of thought is more analogous to the developmental changes in children's drawings, which assume qualitatively different patterns at succeeding age levels.

Intelligence Tests

Since psychologists have no better standard measure of intellectual capability, an individual's score on standard intelligence tests, called the

IQ, has become the primary index of "intelligence." Most psychologists acknowledge that such a score is influenced by a wide variety of processes, including genetically determined capabilities, parental pressure for intellectual development, cultural opportunities for language learning, and the child's motivation to do well in the test situation.

As we pointed out earlier, intelligence tests given to infants under 2 sample functions which are very different from those tapped by the usual adult intelligence tests. Infant tests primarily involve measures of sensorimotor development, while adult intelligence tests emphasize verbal ability and abstract thinking. The correlations between infant (below 2) and adult intelligence test scores have been found to be insignificant.

With the growth of language, however, it becomes possible to include on intelligence tests more items involving verbal ability and fewer dealing with relatively pure sensorimotor functions. And, in fact, this is what has been done. For example, the Stanford-Binet Intelligence Test (45), probably the best-known test of intelligence for young children, includes more and more verbal items with succeeding year levels of the test throughout the preschool period. According to the norms for this test, which includes both verbal and performance tasks, the average 2-year-old can place simple blocks properly in a three-hole form board; identify models of common objects, such as a cup, by their use; identify major parts of a doll's body; and repeat two digits spoken together.

Four-year-level items include naming pictures that illustrate a variety of common objects; naming objects from memory; discriminating visual forms such as squares, circles, triangles, recalling (immediately) nine- and ten-word sentences; and answering comprehensive questions such as, "Why do we have houses?" By age 5, the average child is able to copy a square, construct a rectangle from two right-angle triangles, define words like "ball" and "bat," and complete a drawing of a man (46).

Compared with infant intelligence tests, those given to preschool children are much more heavily weighted with language questions, and are more similar to tests given in later childhood and adulthood. Hence, scores on intelligence tests administered during the preschool period are better predictors of future IQ than are scores obtained from infant tests (20).

As part of an extensive longitudinal guidance study carried out at the University of California, subjects were given intelligence tests periodically beginning when they were 21 months old. During the preschool period the California Preschool Schedule was used, and the Stanford-Binet was administered to each child during later childhood and adolescence. At

age 18, the subjects were given the Wechsler Adult Intelligence Scale. Table 2 shows the correlation between intelligence test scores at each of the preschool years and at ages 10 and 18. This table shows that as children advance in age through the preschool period, their test scores become increasingly more predictive of later performance.

TABLE 2. Correlations Between Intelligence Test Scores During the Preschool Years and IQ at Ages 10 and 18

Ages	N	Correlation with IQ (Stanford-Binet) at Age 10	Correlation with IQ (Wechsler) at Age 18
2	113	.37	.31
2½	114	.36	.24
3	229	.36	.35
3½	215	.59	.42
4	211	.66	.42

SOURCE: After (20). With permission of *Journal of Experimental Education*.

It should be noted, however, that while these correlations are significant, and in some cases substantial, they are not high enough to preclude the possibility of large changes in the scores of individual children. Actually intelligence test scores of many children change markedly between the nursery-school period and later childhood. As we shall see later, many factors may produce changes in intellectual performance.

Similar data from the Fels Research Institute reveal the same pattern (41). The correlation between the IQ's at any two ages becomes smaller as the interval of time between the two tests gets larger (e.g., the correlation between the IQ's obtained at ages 3 and 7 is lower than the correlation between scores obtained at ages 3 and 5). Moreover, when the interval between tests is the same, the correlation between two IQ scores becomes higher as the child gets older (e.g., the correlation between the IQ's at ages 3 and 5 is .72; the correlation between IQ's at ages 8 and 10 is .90 (41)).

In general, in cases of extremely low IQ (below 70, for instance), test scores obtained during the preschool years are much more reliable than IQ scores in the normal or above normal range. For many children, the IQ does not become sufficiently stable for accurate prediction of future intellectual performance until age 6. Moreover, some children show marked increases or decreases in IQ during the early school years, a phenomenon which will be discussed at length later.

Current tests of intelligence appear to be measuring language acquisition and comprehension, immediate memory, and perceptual organization. These may be influenced by hereditary factors, although the exact genetic mechanisms involved are still unknown. However, there is evidence indicating that IQ, and changes in IQ, are also influenced by (1) parental encouragement of these skills, (2) the child's opportunities for contact with adult speech and books, and (3) the intensity of the child's motivation to master intellectual problems (25, 30, 41). These phenomena will be discussed in detail in later chapters.

REFERENCES AND ADDITIONAL READING

1. Bayley, Nancy. Mental growth during the first three years. In R. G. Barker, J. S. Kounin, and H. F. Wright (Eds.), *Child behavior and development*. New York: McGraw-Hill, 1943, 87-105.
2. Bayley, Nancy. Some increasing parent-child similarities during the growth of children. *J. Educ. Psychol.*, 1954, 45, 1-21.
3. Berko, J., & Brown, R. Psycholinguistic research methods. In Mussen, P. H. (Ed.), *Handbook of research methods in child psychology*. New York: Wiley, 1960, 517-557.
4. Buxbaum, E. The role of a second language in the formation of ego and superego. *Psychoanal. Quart.*, 1949, 18, 279-289.
5. Davis, D. M. The relation of repetitions in the speech of young children to certain measures of language maturity and situational factors. Part I. *J. Speech Disorders*, 1939, 4, 303-318.
6. Davis, D. M. The relation of repetitions in the speech of young children to certain measures of language maturity and situational factors. Part II. *J. Speech Disorders*, 1940, 5, 235-241.
7. Davis, D. M. The relation of repetitions in the speech of young children to certain measures of language maturity and situational factors. Part III. *J. Speech Disorders*, 1940, 5, 242-246.
8. Davis, E. A. The development of linguistic skill in twins, singletons with siblings, and only children from age five to ten years. *Inst. Child Welf. Monogr.* (Ser. No. 14). Minneapolis: Univer. of Minn. Press, 1937.
9. Davis, E. A. Mean sentence length compared with long and short sentences as a reliable measure of language development. *Child Developm.*, 1937, 8, 69-79.
10. Davis, E. A. The mental and linguistic superiority of only girls. *Child Developm.*, 1937, 8, 139-143.
11. Day, E. J. The development of language in twins. I. A comparison of twins and single children. *Child Developm.*, 1932, 3, 179-199.
12. Day, E. J. The development of language in twins. II. The development of twins: their resemblances and differences. *Child Developm.*, 1932, 3, 298-316.
13. Garn, S. M. Roentgenogrammetric determinations of body composition. *Hum. Biol.*, 1957, 29, 337-353.

14. Carn, S. M. Fat, body size, and growth in the newborn. *Hum. Biol.*, 1958, 30, 265-280.
15. Gesell, A., Halverson, H. M., Thompson, H., Ilg, F. L., Castner, B. M., Ames, L. B., & Amatruda, C. S. *The first five years of life: a guide to the study of the preschool child*. New York: Harper, 1940.
16. Gibson, J. J., & Gibson, Eleanor, J. Perceptual learning: differentiation or enrichment? *Psychol. Rev.*, 1955, 62, 32-41.
17. Goldfarb, W. The effects of early institutional care on adolescent personality. *J. exp. Educ.*, 1943, 12, 106-129.
18. Goldfarb, W. Psychological privation in infancy and subsequent adjustment. *Amer. J. Orthopsychiat.*, 1945, 15, 247-255.
19. Honzik, M. P. The constancy of mental test performance during the preschool periods. *J. genet. Psychol.*, 1938, 52, 285-302.
20. Honzik, M. P., Macfarlane, J. W., & Allen, L. The stability of mental test performance between two and eighteen years. *J. exp. Educ.*, 1948, 17, 309-324.
21. Hurlock, E. B. *Child development*. New York: McGraw-Hill, 1950.
22. Inhelder, Barbel, & Piaget, J. *The growth of logical thinking*. New York: Basic Books, 1958.
23. Jenkins, J. J., Russell, W. A. An atlas of semantic profiles for 360 words. *Amer. J. Psychol.*, 1958, 71, 688-699.
24. Johnson, W. *People in quandaries: the semantics of personal adjustment*. New York: Harper, 1946.
25. Kagan, J., & Moss, H. A. Parental correlates of child's IQ and height: a cross-validation of the Berkeley Growth Study results. *Child Developm.*, 1959, 30, 325-332.
26. Martin, W. E., & Stendler, C. B. *Child development: the process of grow-up in society*. New York: Harcourt Brace, 1953.
27. McCarthy, Dortha. The language development of the preschool child. *Inst. Child Welf. Monogr.* (Ser. No. 4). Minneapolis: Univer. of Minn. Press, 1930.
28. McCarthy, Dortha. Language development in children. In L. Carmichael (Ed.), *Manual of child psychology*. (2nd ed.) New York: Wiley, 1954, 492-630.
29. McCarthy, Dortha. Research in language development: retrospect and prospect. *Monogr. soc. Res. Child Developm.*, 1959, Vol. 24, No. 5 (Whole No. 74) 3-24.
30. Moss, H. A., & Kagan, J. Maternal influences on early IQ scores. *Psychol. Rep.*, 1958, 4, 655-661.
31. Osgood, C. E., Suci, G. J., & Tannenbaum, P. H. *The measurement of meaning*. Urbana: Univer. Ill. Press, 1957.
32. Piaget, J. *The language and thought of the child*. London: Rutledge and Kegan Paul, 1926.
33. Piaget, J. *The child's conception of the world*. New York: Harcourt Brace, 1929.
34. Piaget, J. *The child's conception of physical causality*. London: Kegan Paul, Trench, Trubner, 1930.

35. Piaget, J. *Play, dreams and imitation in childhood*. New York: Norton, 1951.
36. Piaget, J. *The origins of intelligence in children*. New York: Int. Univ. Press, 1952.
37. Radke, M. J. The relation of parental authority to children's behavior and attitudes. *Inst. Child Welf. Monogr.*, No. 22. Minneapolis: Univer. of Minn. Press, 1946.
38. Schober, G., & Schober, Ada. Uber Bilderkennungs—und Unterscheidung —sfahigkeit bei kneinen Kindern. *Beih. Z. angew. Psychol.*, 1919, 19, 94-137.
39. Smith, M. E. An investigation of the development of the sentence and the extent of vocabulary in young children. *Univ. Iowa Stud. Child Welfare*, 1926, 3, No. 5.
40. Smith, M. E. A study of some factors influencing the development of the sentence in preschool children. *J. genet. Psychol.*, 1935, 46, 182-212.
41. Sontag, L. W., Baker, C. T., & Nelson, V. L. Mental growth and personality development: a longitudinal study. *Monogr. soc. Res. Child Developm.*, 1958, 23, No. 68.
42. Spock, B. *The pocket book of baby and child care*. New York: Pocket Books, 1946.
43. Stevenson, H. W., & Bitterman, M. E. The distance effect in the transposition of intermediate size by children. *Amer. J. Psychol.*, 1955, 68, 274-279.
44. Templin, Mildred. Certain language skills in children, their development and inter-relationship. *Inst. Child Welf. Monogr. Series* 1957, No. 26. Minneapolis: Univer. of Minn. Press.
45. Terman, L. M., & Merill, M. A. *Measuring intelligence: a guide to the administration of the new revised Stanford-Binet tests of intelligence*. Boston: Houghton Mifflin, 1937.
46. Terman, L. M., & Merrill, Maud A. *Stanford-Binet Intelligence Scale*. (3rd ed.) Boston: Houghton Mifflin, 1960.
47. Thompson, H. Physical growth. In L. Carmichael (Ed.), *Manual of child psychology*. (2nd ed.) New York: Wiley, 1954, 292-334.
48. Watson, E. H., & Lowrey, G. H. *Growth and development of children*. Chicago: Year Book Publishers, 1954.
49. Watson, E. H., & Lowrey, G. H. *Growth and development of children*. (3rd. ed.) Chicago: Year Book Publishers, 1958.
50. Weir, M. W., & Stevenson, H. W. The effect of verbalization in children's learning as a function of chronological age. *Child Developm.*, 1959, 30, 143-149.
51. Wellman, B. L., Case, I. M., Mengert, I. G., & Bradbury, D. E. Speech sounds of young children. *Univ. Iowa Stud. Child Welf.*, 1931, 5, No. 2.
52. Werner, H., & Kaplan, E. The acquisition of word meanings: a developmental study. *Monogr. soc. Res. Child Developm.*, 1952, 15, No. 1, (Serial No. 51).
53. White House Conference on Child Health and Protection. *Growth and development of the child*. New York: Century, 1932-1933.
54. Wohlwill, J. F. Developmental studies of perception. *Psychol. Bull.*, 1960, 57, 249-288.

9

THE PRESCHOOL YEARS: PERSONALITY DEVELOPMENT

I. SOCIAL LEARNING

Sex-Typing and the Emergence of New Motives

In any group of preschool children, there are obvious individual differences in personality and social behavior. The shy, retiring child and the outgoing, boisterous one are easily distinguished in even the most casual observations. The striking diversity of behaviors at age 5, in comparison with age 2, is due, in part, to the rapid acquisition of new habits, expanding perceptions, and increasingly extensive contacts with and awareness of the social environment.

By 2 years of age, the average child is walking and learning the language of his culture. Continued advances in motor coordination and conceptual facility during the preschool years make possible much of the differentiation of personality that occurs during this period.

The next two chapters will be concerned with some of the major behavior changes of the preschool years and the environmental influences underlying them. The present chapter discusses the child's adoption of behaviors that the culture views as differentially appropriate for his own sex, and his attempts to model his behavior after that of his parents. We shall also consider the emergence of dependent, aggressive, mastery, and sexual behaviors, and the effect of family relationships on the strength of these behaviors.

SEX-TYPING

Sex-typing refers to the adoption of the beliefs, attitudes, and activities which the culture defines as appropriate for one's sex. Most of the members of Western civilization share a common conviction that boys and girls should behave differently. Beliefs about the specific ways they should differ are sometimes implicit and unconscious; sometimes they

are explicit and consciously encouraged. Parents will vary, of course, in their attitudes concerning the appropriateness of a specific trait for one sex or the other. But, in general, overt physical aggression, dominance, competence at athletics, achievement, competitiveness, and independence are regarded as desirable traits for boys. On the other hand, dependence, passivity, inhibition of physical aggression, competence at language skills, politeness, social poise, and neatness are some of the characteristics deemed more appropriate for girls (66).

Most parents reward behaviors that they view as appropriate to the sex of their child and punish responses that are considered inappropriate. Thus, parents are likely to encourage a boy to "fight back" if a peer has attacked him, but they are likely to punish similar aggressive behavior in their daughter (62). A girl is usually told, "You just come home if that happens again, and don't play with Mary any more." If a 5-year-old girl cries after losing a game, this reaction is likely to be accepted as being appropriate for the weaker sex. The boy who shows tears is reminded, "Little men don't cry." The physically well-coordinated boy is a hero in the neighborhood, while the overly athletic girl is labeled a "tomboy." Moreover, mothers make more demands on daughters than on sons to be neat and obedient, and feel that their sons are more likely to go to college than their daughters (62). Definite patterns of praise and punishment from both parents and playmates during the preschool and school years put pressure on the child to adopt sex-appropriate behaviors.

These sex-typed attitudes may be transferred from one generation to the next with few changes in content. In a recent study (33), a large sample of college students rated the concepts "boy" and "girl" (among others) on 20 polar-opposite adjectives, e.g., good-bad, strong-weak, wise-foolish, etc. Boys were rated higher than girls on the attributes of cruelty, strength, importance, and activity (as opposed to passivity). These young adults—most of them future parents—seem to have definite expectations as to what boys and girls are and should be like. It is likely that when they become parents they will reward and punish their own children in accordance with these expectations. For example, they will accept aggression more readily in their sons, and will expect more "important" and autonomous behavior from their sons than from their daughters.

Social pressures on the boy to be independent in his actions predispose him to avoid being a "follower." Since following or imitating a leader is a relatively passive and dependent method of solving a problem, imitation of adults is more acceptable; hence more frequent in girls. In one study,

32 children, aged 3 to 9 years, individually observed an adult (male or female) pick up one of two colored panels on a box. A child was then asked to select one of the two colored panels, and was rewarded with candy if he imitated the adult's choice. Older girls were more likely than older boys to imitate the adult. The older boys, adopting the sex-appropriate trait of independence, showed the least tendency to imitate the adult leader (49).

By age 5, most children are aware of many sex-appropriate behaviors. If presented with a series of pictures illustrating objects and activities congruent with the sex-typed play of boys and girls (e.g., guns, dolls, cowboys, Indians, kitchen utensils), the vast majority of 3-, 4-, and 5-year-olds say that they prefer the activities and objects that are appropriate for their sex (12, 19, 26).

The preference for sex-typed activities increases during the preschool years. Four-year-old children, for example, show a much greater preference for objects and activities appropriate to their sex than 3-year-olds (26). Moreover, in individual interviews, both boys and girls (aged 4-9 to 5-9) report that they feel their parents prefer them to adopt sex-typed behaviors (19).

The learning of appropriate sex-role behaviors in early childhood has its anticipated results in adulthood. Since boys are expected to be braver, stronger, and less emotional than girls, it is not surprising that the self-concepts of adult men and women are congruent with this early learning. A large group of young adults was presented with a list of adjectives and asked to select those attributes that they felt were most and least characteristic of themselves (9). In comparison to men, women felt less adequate, more negligent, more fearful, and less mature. These adult attitudes about the self may be traceable, to some degree, to sex-appropriate attitudes and characteristics inculcated in the preschool boy and girl.

The Acquisition of Sex-Typed Attitudes

The mechanisms by which the child acquires sex-typed behaviors and interests involve several psychological processes. At least three motives are involved in the child's adoption of sex-appropriate behaviors: (1) desire for praise, affection, and acceptance by parents and peers for sex-appropriate behaviors, (2) fear of punishment or rejection for inappropriate behavior, and (3) identification with the same-sex parent, parent substitute, or fantasied ego ideal.

The Desire for Nurturance and Acceptance

Love and nurturance are, of course, important goals for the child. Praise from parents or peers is a type of substitute nurturance that can act as an incentive and reward for the learning of sex-appropriate responses. When a little boy behaves in an independent manner, he is usually praised by his parents, and this reward strengthens the tendency to behave independently on future occasions. When a little girl acts politely or dresses in her Sunday best, she is likely to encounter a barrage of admiring comments. Although praise from parents and relatives is of primary importance during the preschool years, acceptance from peers for sex-appropriate behaviors also helps to strengthen these responses.

Anxiety over Loss of Nurturance: Prohibition Learning

Closely related to the child's desire for love and acceptance is anxiety over the anticipation that sources of nurturance may be withdrawn. If the child is made to feel rejected or unloved when his behavior is inappropriate, he will feel anxious about continuing such responses, and eventually may inhibit them completely. For example, when a girl is punished by parents for wrestling, or teased by her playmates for wearing boys' pants, anxiety over potential rejection is elicited. This anxiety usually results in the extinction of the punished response and is a major factor in the elimination of behaviors that are defined by the culture as inappropriate to the child's sex.

In addition, to the desire for acceptance and anxiety over possible rejection, there is still a third force that fosters the child's adoption of sex-appropriate attitudes and reactions. This motive is related to the process of identification (11, 36, 47, 59).

Identification

Identification is a term that many psychologists and psychiatrists find useful in conceptualizing various aspects of personality development. It refers to the process that leads the child to think, feel, and behave as though the characteristics of another person or group of people belonged to him. The term *model* is used to refer to the person or group with whom the child is identified (36).

Although the above definition states that the child thinks and feels as though he possessed the characteristics of another person, the student should recognize that identification may be largely an unconscious process. The child may develop and maintain an identification with a model without being aware of it. Identification is not a consciously initiated process

like learning to ride a bicycle. It is more nearly comparable to the acquisition of the ability to speak sentences. The process is subtle and often proceeds without conscious awareness.

Let us consider some real events that may help to illustrate the complex concept of identification. A 6-year-old boy feels proud as he watches his father defeat a rival in tennis. A young girl feels grown up as she puts on her mother's apron and attempts to bake a pie. A 10-year-old girl feels ashamed when the police arrest her father, or put her mother in a mental institution. In each of these examples, the child is behaving as if he or she possessed some of the characteristics of the parent. The proud boy feels as if he had won the tennis match; the girl behaves as though she had her mother's skills as she prepares to bake the pie. The 10-year-old acts as though she, and not the parent, had been arrested or institutionalized. The children in these three examples feel and behave like the model (i.e., the parent) because they are identified with the model.

Often, the roles are reversed and a parent identifies with the child. A mother may feel pride and delight when her child wins the school's spelling contest, or humiliation if he is expelled for cheating. In both instances, the mother's feelings are based on the events that affected her child. She did not win the contest, nor was she expelled; yet she feels and behaves as though these events had happened to her. The phenomena of reflected glory and shame are frequently the products of an identification.

In middle-childhood and adolescence, the individual identifies not only with individuals but also with groups and with institutions. The adolescent's spirits are buoyed when his high-school team wins a championship, and he is depressed if they lose. Americans feel proud when other Americans put a man into orbit or win the Olympics. In these instances, as in the others, the individual behaves as if he were involved in the accomplishment. He feels more competent and adequate because he feels related to a person or group that possesses some desired attribute. Such borrowed feelings of adequacy are the products of an identification with a successful model. The little boy, who is identified with his 6'6" father and boasts to a rival, "My father can lick your father," is apt to behave as if he could defeat his playmate merely because his father is strong. In reality, there is no reason to assume that he will be strong simply because his father is strong. However, when a child is identified with a model, he may behave as if many of the model's attributes were his own.

To be identified with a strong parent can be an important source of security for a young child. In identifying with another person, the child is

borrowing strength and adequacy from the model. This borrowed strength makes him feel more adequate. On the other hand, when someone is identified with an inadequate model (e.g., a child with his criminal father; an adult with a persecuted minority group), he feels less secure and more anxious because he feels he has the undesirable attributes of the model.

HOW DOES AN IDENTIFICATION DEVELOP?

The process of developing an identification with others is not completely understood. But there is no doubt that identification is one of the most basic processes involved in socialization. Hence, in the following section, the authors present some theories and speculations, as well as facts, about this process. The reader should bear in mind that aspects of the discussion are often speculative, existing empirical evidence neither clearly supporting nor refuting them. There appear to be at least two conditions that facilitate the development of an identification with a model. First, the child must want to possess some of the model's attributes. Second, he must have some basis for believing that he and the model are similar in some way. Let us begin by considering the first of these conditions.

The Positive Attributes of the Parents as Models: Nurturance

The average child feels that his parents have several desirable characteristics. They give and receive love, they have power over the child, and they possess skills and privileges he would like to have. Since the mother nurtures the child and provides him with pleasant sources of gratification, she comes to stand for pleasure. In short, her actions, behaviors, and personal characteristics acquire positive reward value. Therefore, the child's imitations of her actions may, according to some psychologists, also be a source of reward. That is, by recreating (i.e., imitating) some of the parent's behavior, he experiences the acquired positive reward value associated with the parents. For example, a 3-year-old girl may care for her doll in the same way her mother cared for her. The motive for this behavior may be the desire to reproduce the positive acts of the mother that have acquired reward value. One important condition for this type of imitation of parental behaviors is a nurturant parent-child relationship. If the mother is highly rejecting, her behaviors will not have positive reward value, and the child will not be motivated to practice them. When parents are warm and accepting, the child views them as "good" people; he views their behavior as rewarding and, consequently, he will want to be like them and act as they do.

The Positive Attributes of the Parents as Models: Power and Competence

Among the parental attributes that the child wants for himself are the parents' skills and privileges. The self-perception of the 4-year-old is not as fuzzy as it was at 18 months. He recognizes that, relative to his parents, he is helpless and weak. He realizes that they are stronger and more skilled and, in general, have control over areas of pleasure that he views as desirable. Parents can stay up late at night; parents can eat anything they want; parents can have parties; parents can spank and restrict the child. The child would also like to control these areas of pleasure, power, and mastery. The discrepancy between his perception of adults and his perception of his own lack of power and mastery acts as an impetus for his desire to acquire the parents' attributes.

There are of course many desirable goal states that parents control. Three important ones are (1) power over the child and other people, (2) mastery of the environment, and (3) love. The desire to possess these goals fosters an identification with the parents.

Perception of Similarity to the Parent

It is now necessary to make a crucial assumption that links the child's desire for these prized goals with his adoption of parental behaviors. The assumption states that in the mind of the child similarity to the parent or model is equated with possession of the parents', or models' traits and privileges.

There are two major ways in which the child may come to feel similar to the model: through adoption of the model's attributes, behavior, and gestures; and as a result of communication with others who tell the child he is similar to the model.

Thus, the child imitates parental behaviors in order to increase the basis of similarity between himself and the parents and to possess vicariously the parents' traits. In so doing, his identification is strengthened. When a 5-year-old boy tries to mow the lawn "like daddy" he may be attempting to make himself similar to his father. The child behaves as though he believed that if he were similar to his father in this respect he would possess some of the father's desirable characteristics—strength, competence, power over the environment. The child behaves as though the more numerous the bases of similarity between himself and the model, the greater the likelihood that he will possess the model's desirable attributes.

Each time the child perceives a basis of similarity with the model, the identification with the model is strengthened. Thus, the crucial events in

the acquisition of an identification are perceptions of similarity with a model. These perceptions may be derived from the child's own observations, or through communications from others who tell the child that he and the model possess similar attributes. These experiences occur regularly in the child's day. For example, a little girl notices that she and her mother wear the same kind of dress or cut their hair similarly. The fact that a girl and her mother have the same family name makes her feel more similar to her mother than to mothers with different family names. The child may be told by her grandmother or neighbor, "Mary, You're just like your mother"; "Bob, you have a memory just like your father." These are just a few of the countless ways in which a child perceives similarities between himself and a parent. These experiences aid the development of the identification.

To summarize briefly: initially, the child perceives a discrepancy between the power, privileges, and desirable aspects of the parents and his perception of himself. He begins to behave as though he believes that if he were similar to the parents he would possess these desired characteristics. Therefore, he may imitate and adopt parental actions in order to increase the similarity between himself and the model. This process is facilitated by people who tell the child that he is similar to one of his parents, and by the child's own perception of similarity between himself and the parent in clothing, anatomy, personality, name, or even type of haircut.

Identification is built from such experiences. As it becomes stronger, the child begins to behave as though he does possess the model's characteristics. The behaviors that he imitated earlier now have become automatic and are more firmly entrenched aspects of his character and personality.

Specific Considerations Relevant to Identification

Before returning to our discussion of sex-typing, there are several issues associated with identification that merit brief attention. First, the process of identification is involved in behaviors other than those directly related to sex-typing, as we shall see later in the chapter. Second, when both parents are perceived as nurturant, powerful, and competent, the child will identify with both of them to some degree. However, since the typical child, of necessity, will perceive a greater similarity to the parent of the same sex, rather than to that of the opposite sex, his identification should be stronger with the former than with the latter. Third, during the first 3 to 4 years, the typical child's contact with the mother is apt to be much more intense than his contact with the father.

Thus, theory would suggest that 3-year-old children should have a stronger identification with their mothers than with their fathers. There is some suggestive evidence supporting this prediction, but it is much safer at this time to regard the statement as hypothetical.

Finally, it should be emphasized that identification is not an all-or-none phenomenon. Typically, each child identifies, to some degree, with both parents, and to a lesser degree, with adults and peers outside the family. We are always concerned with the relative strengths of identifications with various role models.

The Function of Play in the Identification Process

It is highly appropriate that we discuss briefly the concept of "play" in the present context, for much of the child's play behavior is motivated by the desire to increase similarity between the self and a model.

The word play has little scientific value, for it is the layman's label for the nonconstructive and unrealistic behavior of the child. When a mother says "Go out and play," she often means "Do anything, but don't bother me." The child could roll down a hill, paint his sled, watch the sunset, or read a book, and the parent would regard it as play.

Most of the child's day-to-day behavior is aimed at directly gratifying primary needs (sleeping, eating) or learned needs (seeking help with problems), reacting to frustration and attack, solving realistic problems, or carrying out the socialization demands of adults. These various behaviors are reactions to realistic demands and typically have solutions that the child is able to initiate. However, part of the child's day is spent in behaviors that are not reactions to pressing environmental demands and are not concerned with realistic problems. In these situations the child is freed from behaving sensibly.

This nonrealistic behavior, normally called play, has three major functions. First, it is a medium for the discharge of energy. Civilized living forces the child to inhibit motor activity for long periods (e.g., to sit still and to refrain from uncontrolled running and other gross motor activity). This limitation on gross motor activity appears to be frustrating to the young child, and episodes of vigorous activity appear to be necessary and gratifying.

Second, play is used to practice new skills. The young boy plays marbles; the young girl sews a napkin. The initiation and continued practice of these behaviors can be motivated by the desire to acquire and to perfect new skills. Such behavior is a product of the child's need for mastery and competence.

A third important motive for what is called play is the desire to

practice behaviors of a role model (real or fantasied) in order to create in the mind of the child some perception of similarity to the model. A little girl plays nurse or plays mother; a boy plays cops-and-robbers or pretends he is a pilot. Many of the games children play involve fantasied adult roles which permit the child to participate vicariously in the adult world—to feel, for a moment, what it might be like to be an adult.

Social Pressure and Same-Sex Identification

Most boys tend to identify primarily with their fathers and girls with their mothers. As we have seen, this general trend is due, first, to the fact that the social environment encourages the child to model himself after the same-sex parent, and punishes him for adopting the traits of the opposite-sex parent. Thus, the boy is pressured to imitate the father, and the more he does this, the stronger this identification is likely to become. Secondly, the child perceives a greater similarity between himself and the parent of the same sex, and this condition strengthens his identification with the same-sex parent.

Parental Personality in Relation to Sexual Identification

The degree to which the child adopts the parents' behavior is a function of their nurturance and affection for him, their competence, and their power. If the parents did not possess these characteristics, the child would not want to be like them, and would not acquire a positive identification with them. Theoretically, the ideal situation for the adoption of traditional and appropriate sex-role behaviors is one in which (1) the same-sex parent is seen as nurturant and possessing desirable characteristics, and (2) both parents consistently reward sex-appropriate traits and discourage inappropriate ones. Mowrer summarizes this process:

In the ideal family constellation, a little boy finds it very natural and highly rewarding to model himself in his father's image. The father is gratified to see this recreation of his own qualities, attitudes, and masculinity; and the mother, loving the father, finds such a course of development acceptable in her son. Tentative explorations, conscious and unconscious, in the direction of being "like mother" quickly convince the boy that this is not his proper or approved destiny; and he speedily reverts to his identification with father. In the well-ordered, psychologically healthy household, much the same picture, in reverse, holds for the little girl.

But where there is parental disharmony, all this is changed. If there is chronic antagonism between husband and wife, the boy discovers that if he identifies with his father it is at the price of losing his mother's love and approval; if she is antagonistic toward and disapproving of the husband, she will

feel scant enthusiasm for seeing her son become "just like *him*." If, on the other hand, the boy tries to take his mother as a personal model, he will almost certainly incur his father's displeasure and also risk the general opprobrium connected with being a "sissy."

For the little girl in such a household, very much the same type of dilemma arises. To be like her mother is to take a critical, unloving attitude toward her father; and if she tries to resolve her difficulties by being like father, she will lose the mother's support and possibly that of women generally (51, 596).

When the same-sex parent is regarded unfavorably (e.g., weak, unskilled, unloved, alcoholic) and the social environment tells the child he is "just like his father," the child will develop an identification with the model's *negative* qualities as well as with some of his rewarding, desirable characteristics. In these cases, the child's self-concept will, to some extent, be anxiety arousing. Such an identification develops because the child perceives many sources of similarity between himself and the parents (e.g., name, sex, ethnic or religious group).

Research on Sex-Typing and Identification

Although this discussion of identification and sex-typing has been largely theoretical in nature, a number of empirical investigations have provided some support for these important hypotheses. One group of investigators assumed that, since the father supplies the primary model for aggression in the boy, the father's absence may delay the development of aggressive behavior in boys (58, 60). Since the father is not the model of sex-appropriate behavior in girls, his presence or absence may have little influence on his daughter's aggressive behavior.

In order to test this hypothesis, investigators have studied the aggressive doll play of preschool boys and girls. In a doll-play procedure, the child was presented with dolls representing father, mother, and siblings together with objects familiar to the child. The content of the child's play with the dolls was studied to determine the degree of aggressive preoccupations (e.g., "The boy is mad at the father," "The boy breaks the toy," "The mother punishes the child," "Bomb falls on a house," "Father's head is sliced off").

Half of the children were from homes with both parents present, while the other half came from homes in which the father was absent, usually because of military service. In general, the findings confirmed the original hypothesis. Girls from father-present homes did not differ significantly in amount of aggressive doll play from girls whose fathers were absent. On the other hand, 3- and 4-year-old boys from father-absent homes manifested significantly less aggression in doll play than father-present boys

of the same age. Boys of this age were not as likely to learn the typically masculine pattern of aggressive behavior if their fathers were not at home to serve as models and agents of reward for these responses.

The hypothesis that a boy will be most likely to identify with the father if the latter is perceived as strong, powerful, and nurturant was supported in a study of 38 5-year-old boys (53). The Brown "It" test (12), which assesses preferences for masculine and feminine activities, was administered to all subjects. It was assumed that those scoring high on this scale had a strong masculine identification, presumably based on identification with the father. Several weeks after they had completed the "It" test, boys high and low in preference for masculine activities completed some incomplete stories told in a doll-play interview designed to evaluate the nature of the child's perception of his father. Those boys with the greatest preference for masculine activities (high male identification) perceived the father as more punitive, more threatening, more powerful, and *more nurturant* than boys low in masculine interests. Thus, other things being equal, it appears that the child identifies with the same-sex parent when that parent is perceived as strong, competent, and nurturant.

In several studies, children from 3½ to 10 years of age were interviewed directly about their perceptions of their parents (e.g., who are you more afraid of, your mother or your father?) or were asked similar questions in a more indirect manner (e.g., who do you think this boy is more afraid of, his mother or his father?). Both boys and girls perceived the father as stronger, more punitive, more interfering, more competent, and the more fear arousing parent; the mother was perceived as more nurturant and loving than the father (17, 21, 35, 39, 41). Moreover, children of ages 3 to 9 are more likely to imitate a man than a woman, also suggesting that the child ascribes more competence to the male than to the female role (49).

Since boys and girls have a tendency to view the father as the more powerful and competent parent, one might expect girls to desire to possess some of the father's attributes. If this were so, the girl should be more in conflict about which parental model to choose for identification.

A recent study (17) verifies this expectation. Doll-play interviews were conducted with 31 4- and 5-year-old children. The investigator described a simple situation involving a parent (mother or father) and a child, or a child and a baby, and then asked the subject to "Tell what would happen." For example, the child might have been shown a mother doll and a boy doll and told, "They are in the store and the boy won't leave. He sees a

toy he wants." The child then completed this story, presumably describing what might happen in this situation.

The measure of identification with mother or father was the similarity between the responses given to mother-child or father-child story situations, and those given to child-baby story situations. For example, a boy who told a mother-child story in which the mother did not give the boy the toy (as in our previous example) and a child-baby story in which the child does not give the baby something the latter wants would receive a mother-identification score. The results revealed that boys much more frequently identified with their fathers than with their mothers, while girls showed an equal amount of identification with both mother and father. Although one cannot be sure that doll-play behavior furnishes a valid index of identification, these results are consistent with, and thus support, theoretical expectations.

In short, desire to identify with the parent of the same sex may be stronger for boys than for girls. The lack of a clear-cut identification of girls with mothers is taken to reflect the fact that girls perceive the father as more powerful than the mother, and are, therefore, more ambivalent (i.e., unsure) about choosing the mother as a model for identification than are the boys about choosing the father.

Parents are not the only models with whom children identify. Older siblings who are seen as stronger and more competent can also serve as models for identification. Girls who have older brothers tend to be "tomboyish," while boys with older sisters have a relatively high proportion of feminine traits (42). That is, a girl with an older brother is more likely to be aggressive, persistent, and decisive with problems than a girl with an older or younger sister. Boys with older sisters, on the other hand, are less aggressive than boys with older brothers.

The Oedipal Situation

In the discussion of identification we stated that *one motive* for the child's identification with the same-sex parent was a desire for love and affection from the opposite-sex parent. According to psychoanalytic theory, the boy's desire for the love and affection of his mother is one of the defining characteristics of the Oedipal conflict. Moreover, Freud and his followers believe that the intensity and mode of resolution (i.e., final outcome) of this conflict is of critical importance in the individual's future behavior. According to Freud, the Oedipal conflict involves two related motives: the boy's desire for the love and affection of his mother and a feeling of rivalry with his father over his mother's love. An analogous

conflict is present in the girl: a desire for the father's affection and a competitive rivalry with the mother. The Oedipal conflict will be illustrated with the case of a hypothetical boy of 5, but the dynamics of the situation are, to some degree, similar for the girls.

In a typical family, the boy perceives that his father receives love and affection from the mother. The mass media (television, movies) support this perception. Since the child has already developed a desire for the mother's affection, it is reasonable to assume that he will also want for himself the love and concern that the mother gives to the father. Identification with the father is one way of obtaining this desirable goal (i.e., the mother's affection). The child, therefore, strives to make himself similar to the father in the hope that, by so doing, he will eventually be "just like daddy" and receive, vicariously, the highly prized affection of his mother.

According to psychoanalytic theory, the boy's desire for the mother's affection leads him to feel that his father is his rival. This feeling of rivalry leads to hostility toward and fear of the father. The fear of the father results from the child's belief that the father resents the child's competition for the mother's love and is aware of the boy's occasionally hostile thoughts.

The psychoanalytic conception has been summarized thus:

In its simplest form the boy's already formed attachment to the mother unconsciously becomes tinged with the strongly emerging sexual impulses. To permit the gratification of these impulses, the father as an obstacle must be removed. This is accomplished by fantasizing himself in place of the rival father. . . . (10, 91).

The reader should bear in mind, however, that the Oedipal situation is not initiated entirely by the child. The writing of H. S. Sullivan (65) and the work of Sears and his colleagues (61) have helped to clarify the role of the parent in the Oedipal conflict. By the time the child is 3 or 4, some mothers begin to be less indulgent and more demanding toward their daughters than toward their sons (61). It is also likely that fathers become more demanding with sons and more indulgent with their daughters. Although preschool children characteristically see the father as a major punishing agent and the mother as the primary source of affection, there is a gradual shift in this perception as the child enters the middle-childhood years. At this later age, the girls begin, more acutely than when they were younger, to view the mother as more punitive (21, 35), while the boys retain their perception of father as punitive and mother as

nurturant. The child of 9 or 10, in comparison with the 5-year-old, sees the opposite-sex parent as less fear arousing and more affectionate. It is likely that differential parental behaviors toward sons and daughters facilitate the development of an affectionate tie between the parent and the child of the opposite sex.

The Oedipal Conflict: Cultural and Familial Factors

The concept of the Oedipal conflict, as described by Freud, is not completely validated, and many social scientists disagree with Freud's statement that the Oedipal conflict is universal. There is some evidence that, at least in American culture, the praise and approval of a woman is much more influential in motivating young boys than is the approval of a man. For girls, the effect is just the opposite; verbal approval from a man, rather than a woman, is more effective in producing improvement in the child's performance in a simple game. These results suggest that the affection of the opposite-sex parent is, as psychoanalytic theory suggests, generally more important to the child than the affection of the same-sex parent.

This may not be true of other cultures, however. Anthropologists have pointed out that the occurrence of the Oedipal conflict depends on the nature of family structure in the culture. For example, among the Melanesians, the father acts as a cheerful adult playmate of the children, while a maternal uncle functions more as teacher and punisher. Under these circumstances, the father could hardly be viewed as an object of hate or "a rival who stands in his way and whom [the child] would like to push aside." (20, 91).

Another anthropologist (16) reports that there is no evidence of an Oedipus complex among the Hopi Indians. In this group, diffuse affection is given to many relatives; hence there is no intense concern with the parent of the opposite sex.

After reviewing a wealth of anthropological literature, Honigmann concludes that most workers in the field of culture and personality

... believe that hostility toward the father may well show up in *some* groups and may indeed be accompanied by rivalry for the affection and attention of the mother. Such behavior they expect is derived from social conditions, for example, in the small family where a child's affectional satisfactions are tightly dependent on only two adults. These adults become very precious. Lack of attention from one arouses ready jealousy. Hostility is more likely to attach to the father because dependence, for a variety of reasons, is more intense on the mother. It is in her that the child sees his security and safety bound up (30, 67, *italics ours*).

Many writers (64, 69) maintain that intense, unresolved Oedipal conflicts are quite prevalent in our own society. No reliable statistical data are available, but mental hygiene workers agree that, in many cases, emotional maladjustments stem from excessive devotion to opposite-sexed parents and excessive hostility toward the same-sexed parent.

FAMILY RELATIONSHIPS AND OEDIPAL CONFLICTS. Certain kinds of family relationships appear to set the stage for the development of strong Oedipal conflicts which are difficult to resolve. A doting mother who fondles and caresses her son excessively and is overly solicitous is encouraging him to become strongly dependent upon her. If at the same time the father is "too busy" to spend time with the child and to satisfy some of his needs, favorable father-son relationships are not likely to develop. Moreover, by demanding some of the mother's attention, the father may prevent her from gratifying all the child's needs immediately. Perceiving this, the child may view the father as a frustrator, and hence as an object of resentment and hostility. Under these conditions, the fundamental components of the Oedipus complex, overattachment to the mother and hatred of the father, are present.

The most obvious consequents of unresolved Oedipal conflicts become apparent in adolescence and adulthood. For example, the boy who remains emotionally tied to his mother's apron strings does not make affectionate and love responses to others. When he becomes an adolescent or adult, he may still be unable to break his attachment to his mother; hence he will find it difficult or impossible to form any other relationships such as those required in heterosexual adjustment and marriage.

On the other hand, overt rejection and neglect by the mother may have comparable effects on her son. The boy in this situation may never develop a strong desire for his mother's love, and his ability to establish a deep and meaningful heterosexual attachment in later years may be impaired. Either an overly intense tie to the opposite-sex parent or complete absence of an affectionate tie can lead to difficulties in establishing satisfactory heterosexual relationships.

MORAL STANDARDS

The learning of moral standards and prohibitions begins during this period. This learning is part of the process that has been called, by psychoanalytic writers, *superego development*. Moral standards refer to the right and wrongs of the child's society, the "do's and don'ts." The child must learn, among other things, to tell the truth, to inhibit aggression and destruction, to be sexually modest, to be nice to playmates, to obey his parents, to be quiet at dinner, and to do his homework. The same three

motives that facilitated the adoption of sex-typed behaviors (i.e., desire for praise and acceptance, fear of rejection and identification) also operate in the learning of moral standards. However, anxiety over possible rejection and the identification motive assume primary importance in learning moral standards. The child may "eat properly," for example, because he fears punishment and rejection or because he wants to create similarity between himself and the adult model. Both motives appear to operate, in most cases, in the formation of the superego or conscience.

The acquisition of a *conscience* (superego) is a very important step in the development of moral standards. When the 2-year-old spills milk on the new tablecloth he may experience fear or anxiety over an external event, namely, punishment or temporary disapproval by the mother. By age 4, however, the child will experience a different kind of unpleasant feeling after spilling milk, one not so closely tied to an external event. He will begin to experience the feeling of guilt. The onset of guilt marks an important change in the mental life of the child. In the adequately socialized individual the source of anxiety which inhibits a social action must come from within (i.e., guilt), rather than from without, as in the case of fear of spanking or scolding. An internal censor does the scolding if the child is bad, and he fears disapproval from his own conscience rather than from his parents.

The details of conscience formation are not fully understood, but identification is undoubtedly one factor in this process. Psychoanalytic theorists regard the superego as one of the major products of the identification process. The child will strive to make himself as similar to the parent as possible and will view parental moral behavior and prohibitions in the same way that he views other parental behaviors. The adoption of parental standards makes him feel similar to his parents and, therefore, strengthens his identification with them.

Once the child has learned the content of his parents' standards he punishes himself "whenever he has done something for which he believes his parents would feel he should be punished" (70, 227). As Murphy (52) phrases it,

... through identification with the parent, he has taken over and incorporated within himself the attitudes of condemnation of those who transgress" (52, 541). "When, by the process of identification he demands from himself conformity to a standard of conduct, the superego is said to be making its appearance (52, 543).

Sears, Maccoby, and Levin (62) describe the behavior of a little girl during this transition period between fear of the environment and development of a conscience.

Martha's parents brought her along one Sunday afternoon when they came for a visit. She was seventeen months old, full of curiosity and mischief. While we had coffee and cookies, she thirstily drank down a glass of milk, ate half a cookie, and began an eager exploration of her surroundings. Toddling most of the time, crawling occasionally, she left trails of crumbs and tipped over cups wherever she went. One of the floor lamps fascinated her especially. It was tall and straight, made of a single, glossy round of wood, just the right size for Martha to get a good grip on. When she stood up against it, clutching happily, the lamp teetered and swayed in what was obviously an entrancing fancy for Martha.

Twice her father had to put down his cup and lead across the room to prevent a crash. Twice he said, clearly and distinctly, "Now Martha, don't touch." Each time he took her by the hand and led her over to some toys. These distracted her only briefly.

After the second interruption, Martha began a general exploration of the room again. Now she went a little more slowly, and several times glanced at her father. As she came closer to the lamp, however, she stopped looking his way and her movements were all oriented toward the lamp. Deliberately she stepped toward it, came within a couple of feet of it, and lifted her arm partly, a little jerkedly, and then said sharply, commandingly, "Don't touch."

There was an instant of struggling silence, then she turned and stumbled across the room, flopped down on the floor, and started laughing excitedly. Her father laughing with her, and obviously adoring, reached out and hugged and snuggled her for minutes.

Why was this a beginning of conscience? Why not assume, more simply, that Martha was afraid her father would punish her if she touched the lamp again? The difference between fear and conscience lies in the self-instruction and the incorporation in the child herself of the values expressed by the parents. Martha was playing the parental role when she said sternly to herself, "Don't touch." Had she continued to look furtively at her father as she got close to the lamp—had she oscillated back and forth in her approach—had she been whimpery or silent and withdrawn after the moment for decision—we would have said she was responding to the dangers of the situation by simple avoidance. But at the crucial moment, she did not have to look at her father; she looked to herself for guidance and the behest she followed was her own (62, 365-366).

During the preschool years the conscience is a generally fragile and delicate structure, and the child vacillates between assuming responsibility for his behavior and relegating to adults the power to decide whether his (the child's) behavior is right or wrong. This balance was illustrated in a study in which the aggressive play of pairs of boys with an adult female present was contrasted with such play in a situation in which no adult was present. The boys were much more aggressive when the adult was present than when she was absent. According to the investigators, when the young child is alone, he assumes some responsibility for his actions (superego functioning). But when an adult is

present, the child is most willing to give to him the responsibility of deciding whether aggression is permitted. It is also possible that the child may feel more protected from the retributions of a peer when the adult is present. That is, he may be reluctant to initiate aggression toward a peer when an adult is absent because there will be no one to "stop the fight" if he is overpowered by the other child.

Child-Rearing Attitudes and Conscience Formation

There are several kinds of actions a mother can take when she wishes to encourage or discourage certain behaviors. One possibility is to *stop the ongoing behavior*. The mother who sees her child smearing jam on the wall can distract him by calling, "Johnny, come here and see the toy I have for you." She can *directly tell the child what to do*, i.e., "Johnny, stop smearing the walls." Finally, she can *punish the behavior*, either through physical techniques (e.g., spanking), through threatened withdrawal of love and disapproval, or through material deprivation. That is, the mother can say, "Mary, I won't like you if you smear the walls," (withdrawal of love) or "If you smear the wall you can't have any dessert." (material deprivation).

In general, among children of kindergarten age, the more often withdrawal of love is used as a technique of discipline, the stricter the child's conscience (62). But such love-oriented techniques are only meaningful if a strong affectionate relation between mother and child has already been established. The mother cannot effectively threaten withdrawal of nurturance when she has not been giving any love in the first place.

Withdrawing love where little exists is meaningless. If the mother is relatively cold to begin with, then using withdrawal of love should have little effect on conscience development. The pattern most calculated to produce 'high conscience' should be that of mothers who are usually warm and loving and, as a method of control, threaten this affectionate relationship. The children most prone to behave in the ways we have considered indicative of having a well developed conscience were those whose mothers were relatively warm toward them, and who made their love contingent on the child's good behavior. These were the children who truly were risking the loss of love when they misbehaved (62, 388-389).

Ego Ideals

Closely related to the "don'ts," or prohibitions of society, are the positive ideals the child adopts and the heroes he respects. Learning the prohibition, "Don't lie," and establishing the ideal of "I will be an honest man," are related processes, and many ideals that guide people's lives are

based on prohibitions and ideals learned during early childhood. The formulation of a standard of values, the establishment of long-range goals, and hero-worship are, in part, by-products of the identification and superego process that begins between 4 and 6 years of age. This is not to say that experiences during later childhood and adolescence are not important. They are. But the nature of the identifications established during the preschool and early school periods give direction to later developments.

Identification and superego formation are prolonged processes, having their foundation in the earliest child-parent interactions. As the child's social world expands, he will find other identification models—neighborhood children, teachers, or fictional and movie heroes. He will attempt to emulate their behavior and characteristics, and some of their ideas will become his. Eventually, behavior learned from these sources may become more predominant than behavior in imitation of the parents. The individual's final personality will be the product of a series of identifications. In some ways he will be like his parents, in others he will be like the heroes, real or fictional, with whom he has had contact.

GOAL-RELATED BEHAVIORS IN THE PRESCHOOL CHILD

The following sections deal with some of the antecedents and correlates of sexual, dependent, aggressive, and mastery behaviors. We emphasize behavior rather than motives because there are few one-to-one relationships between motives and behavior, and it is often difficult to infer motives from behavior. In the 1-year-old child, the arousal of a motive is likely to lead immediately to behavior aimed at gratifying the motive directly. One-year-olds are not expected to have learned to delay or inhibit gratification of their needs. However, the 5-year-old child has learned that he must delay gratification of many of his desires. He is expected to control his aggressive, dependent, and sexual desires. Usually, he anticipates anxiety and guilt when he contemplates certain motives and overt actions. The growing ability to delay immediate gratification of a motive is part of ego development. Consequently, the fact that dependent or aggressive behavior occurs infrequently does not always indicate that the child's dependent or aggressive motivation is low. Rather, it may only signify the acquisition of controls and inhibitions of these behaviors.

Conversely, a strong motive does not always lead to direct attempts at gratification. For example, abundant maternal warmth and nurturance may produce a child with a strong desire for a dependent relation with others.

However, a nurturant mother who also wanted her 5-year-old to be independent would encourage her child to inhibit dependent behavior and to behave independently in many situations. Such a child might harbor a strong need to be dependent, but would inhibit such behavior since it would violate his mother's wishes.

Many of the motives that are present in the 5-year-old involve what is termed an *approach-avoidance* conflict. This means that there will be, on the one hand, a desire to approach a goal and, on the other, anxiety associated with the attainment of the goal. For example, the desire to disobey the mother openly is part of an approach-avoidance conflict. The child wants to rebel against the mother's demand that he drink his milk, but he fears punishment or disapproval if he refuses this request. There are, therefore, forces impelling him both to disobey (i.e., approach motives) and counterforces which oppose the direct expression of rebellion (i.e., avoidance motives). The actual behavior displayed by the child will be a function of the interaction of these two forces; the desire to gratify the motive and the opposing anxiety that blocks attempts at gratification. Whether the child will attempt to obtain the desired goal will depend on the relative strengths of the approach and avoidance tendencies.

The Emergence of Sexual Interests and Motives

During the preschool period, many children discover that touching and manipulation of the genital area produce pleasant sensations, and probably most children practice some form of modified masturbation during these years. In a recent study (62), about half of a group of 379 mothers reported sex play or genital handling in their children, thus corroborating the findings of an earlier study (31). Many mothers are undoubtedly reluctant to report this type of information and many children are hesitant about overt masturbation. These figures, therefore, are probably conservative estimates of the frequency of self-stimulation in young children.

Masturbatory activity leads to pleasant sensations, and many young children develop and maintain this behavior. Since reward and gratification are associated with the genitals, the child's interest in them increases and, as would be expected on the basis of the principle of generalization, he also becomes interested in the genitals of others. However, in our culture, curiosity about the sexual anatomy of his parents or playmates often leads to punishment, and hence, anxiety. According to one study (62), only 5 percent of a large group of mothers reported complete permissiveness about masturbation, and less than 15 percent permitted the child to run about the house naked. Typically, mothers will spank or scold

if they discover the child masturbating openly, and this punishment produces anxiety over sexual behavior and the genital area. The genitals may then become the focus for conflict because, on the one hand, they supply uniquely pleasant sensations, and, on the other, evoke the anticipation of punishment and anxiety. The combination of pleasure and anxiety over an object or activity, which is a definition of conflict, often leads to heightened preoccupation with the source of the conflict.

Sexual Curiosity

Young children have a great deal of curiosity about sex. (32). An analysis of mothers' recollection of sex questions of 1,790 children, between 2 and 14 years of age, indicated that many children asked sex questions before they were 5 years old. Between the ages of 2 and 5, the questions frequently dealt with the origin of babies and anatomical sex differences (27).

Instances of exhibitionism (exposing genitals), voyeurism (looking at others' genitals), and persistent curiosity about the anatomy of the opposite sex have been observed frequently among nursery school children. In more permissive cultures, children may be much more open and spontaneous in their sexual behaviors. For example, Malinowski observed that in the Trobriand Islands, where sexual exploration is not punished or restricted, children of preschool age are highly active at a genital level and a large proportion of their play is sexually oriented (48).

The absence of open sex play and the secretive nature of children's sex discussions in our culture are clear indications that the child is afraid of the adult's reaction to this behavior. Parents who deal realistically with the child's sex questions are likely to reduce the anxiety that is often associated with sexual behavior and the genitals.

When the child becomes interested in the problems pertaining to sex and birth, his questions should be answered frankly, truthfully, and without embarrassment as they come up. That is not so difficult a job as one might think because children need and want very little information at any one time. If children ask where they come from, and they are told that babies grow within the mother's body, that answer will satisfy most children for that particular day and, perhaps, for several weeks or months to come. They just do not get around to asking any more until something in connection with their play with other children or some event in the home life comes up which prompts a question for additional information. Very often parents make a problem for themselves by the feeling that when the child asks the first question about sex, they are obligated to tell him everything that has been written in a twelve-volume treatise on sexuality. Obviously this is neither necessary nor advisable (18, 72).

Curiosity about Nature

The child's curiosity about sexual matters is supported by an independent motive having little to do with sex, *per se*. The child is curious about a lot of things in the world about him—cars, the sky, sources of food, animals—and it is not surprising that he also becomes curious about the anatomical differences between boys and girls—in fact, it would be surprising if he did not. Since the child of this age is busy learning about his body and establishing a basic concept of the world, this observable difference between boys and girls is a very important matter. The child's "desire to know" about all of nature, which is characteristic of this period, plus the perceived parental anxiety about sex, increases the child's concern with sexual matters. It is as if the child's attention were directed toward sexuality, because the adult world makes such a fuss about it.

Aggressive Behavior

Aggression refers to behaviors whose goal is to hurt or cause anxiety to others and, in the preschooler, includes hitting, destruction of property, verbal attacks, and resistance to requests. The child's tendency to be overtly aggressive is determined by many factors. Three of these are (1) the intensity of his desire to hurt or injure others, (2) the degree to which the environment is frustrating and instigates aggressive tendencies, and (3) the amount of anxiety and guilt associated with aggression. There is some persuasive research to support the hypothesis that the child will inhibit overt aggression in settings where fear and anxiety have become associated with aggressive responses (29). Two investigators (29) observed 23 nursery school children during four doll-play sessions and recorded and rated all instances of aggression. Ratings were made in two categories: *intense aggression* (physical punishment, injury, and destruction of equipment) and *attenuated aggression* (mischief, verbal aggression, and inducing discomfort). During the second doll-play session, 12 children, the experimental group, were punished by verbal disapproval (statements such as "No, John, don't you know nice boys shouldn't do things like that?") every time they made an aggressive response. Members of the control group, 11 children, received no punishment and were allowed complete freedom to express aggression throughout the four sessions.

No one was punished during the third session. Nevertheless, the experimental subjects manifested significantly fewer and less intense aggressive responses in this session than they did during the first. The control group, on the other hand, increased regularly in both frequency and intensity of

doll-play aggression from the first to the fourth sessions. In other words, as was predicted, punishment leads to an inhibition of aggression, while "permissiveness with respect to aggression reduces anticipation of punishment and/or increases anticipation of reward for aggression and thus results in an increase of aggression" (29, 42).

These findings seem quite applicable to the home situation. If aggressive expression is punished there, the child will learn to inhibit hostile responses in that setting.

Moreover, the fear and anxiety which become attached to hostile responses also generalize and become associated with aggressive expression in situations resembling the home situation. Hence the child learns to inhibit hostile behavior in these situations as well as at home. However, since the underlying aggressive motives have acquired considerable strength, they are *not* eliminated. Under these circumstances, aggressive responses may be "displaced," that is, they may be expressed in situations which are quite different from the home situation (e.g., in permissive doll play).

Specific predictions about the expression and inhibition of aggression may be derived from these theoretical considerations. For example, it may be predicted that children who are frequently frustrated at home develop strong aggressive drives and reactions. Moreover, those who are punished for the expression of aggression at home will "displace" their aggression, i.e., exhibit it in situations where there is little threat of punishment.

On the basis of their study dealing with the influences of *home punishment and frustration* on children's aggression in doll play, Hollenberg and Sperry (29) presented data relevant to these two predictions. The subjects were 30 nursery school children whose mothers were intensively interviewed and asked about such things as restrictive rules, responsiveness to the child's needs or requests, enforcement of compliance with mother's motivations, and maternal behavior during infant feeding, weaning, and toilet training. Measures of *home frustration* were derived from the answers to these questions. *Punishment* of aggression in the home was also rated on the basis of mothers' statements about the frequency, intensity, and duration of spanking, threatening, isolating, scolding.

The data generally confirmed the two predictions. Children who were in the highly frustrated group (above the median in *home frustration*) tended to be more aggressive in permissive doll play than mildly frustrated children. As was predicted, highly punished children (above the median in *home punishment*) exhibited more aggression in this situation

(i.e., displaced aggression) than those who were mildly punished. Homes which rated high in both frustration and punishment produced children who manifested considerably more frequent and more intense expressions of doll-play aggression than children from homes rated low in both these variables.

INFLUENCE OF HOME PUNISHMENT AND FRUSTRATION ON AGGRESSION. The child who has been severely punished for aggression in the home may make aggressive responses in a permissive setting, such as the doll-play situations used in the Hollenberg and Sperry studies cited above. But such a child may inhibit aggressive behavior in social situations, such as those in nursery school, which resemble the home setting much more closely than the doll-play situation does. In other words, the inhibition of aggression, learned at home, may generalize to similar situations (such as the nursery school), but may not generalize to situations which are highly dissimilar (such as the doll-play situation).

Sears, (61) observed the aggressive responses of three groups of nursery school children in free-play situations. The first group had nonpunitive mothers. The second group had mildly punitive mothers; and the mothers of children in the third group were severely punitive. The second group, the mildly punished children, manifested the greatest number of aggressive responses. The first group had relatively few aggressive responses, presumably because they were seldom frustrated at home and hence did not have strong aggressive drives. The third group, the highly punished children, also made relatively few aggressive responses with peers or adults. The severe punishment these children had suffered led to inhibition of aggressive *responses*, and the inhibition generalized to the nursery school. However, this inhibition of responses did not indicate that the aggressive motive had been gratified. In permissive doll play, where there was little likelihood of punishment for aggressive responses, the children of highly punitive mothers exhibited more aggression than children in either of the other two groups.

While too much punishment for aggression may lead to heightened aggressive motives, too much permissiveness of the child's aggression may act as a reward and lead to an increase in the frequency of overt aggression. Other data indicate that mothers who permitted aggression on some occasions and punished it at other times (i.e., were inconsistent) had highly aggressive children (62). When parents allow aggression to occur occasionally, they allow the child to reduce some anxiety over this response. In addition, the inconsistency in discipline creates a frustrating situation which increases the probability of aggressive behavior in the

child. An alternative technique is to permit aggression and rarely punish it. This is a rare and unusual child-rearing situation, especially in American families. We would expect children raised by such parents' practices to be high in overt aggression. On the basis of their research, Sears et al. feel that the best way to prevent aggression in the child is to discourage it, but to avoid physical punishment of aggressive behavior.

Our findings suggest that the way for parents to produce a non-aggressive child is to make abundantly clear that aggression is frowned upon, and to stop aggression when it occurs, but to avoid punishing the child for aggression. Punishment seems to have complex effects. While undoubtedly it often stops a particular form of aggression, it at least momentarily appears to generate more hostility in the child and to lead to further aggressive outbursts at some other time or place. Furthermore, when the parents punish—particularly when they employ physical punishment—they are providing a living example of the use of aggression at the very moment they are trying to teach the child not to be aggressive. The child who copies his parents in many ways, is likely to learn as much from this experience of successful aggression on his parents' part as he is from the pain of punishment. Thus, the most peaceful home is one in which the mother believes aggression is not desirable and under those circumstances is never to be expressed toward her, but relies mainly on nonpunitive forms of control. The home where children show angry, aggressive outbursts, frequently are likely to be homes in which the mother has a relatively tolerant (or careless) attitude toward such behavior, or where she administers severe punishment for it, or both. (62, 286).

Sex Differences

In the discussion of sex-typing, it was noted that boys are subjected to less punishment for aggression than girls. As a matter of fact, some mothers believe that the ideal boy should be able to fight back and defend himself when attacked (62). Thus, boys should be less anxious about aggressive behavior. There is abundant evidence that boys manifest much more aggressive behavior than girls in both play and fantasy (1, 34, 44, 55, 58, 67). Moreover, during the preschool years, lying, destructiveness, and temper tantrums occur more frequently in boys than in girls (46).

A study of 54 nursery school children (34) revealed that boys participated in more conflicts, were more often the aggressors, and made more overt attacks than girls. Girls, on the other hand, used language in their conflicts more often than boys did. These differences were particularly marked among the older preschool children. At the age of 2, boys and girls hit, screamed, and cried with about equal frequency. However, by 4, boys did relatively more hitting and relatively less screaming

and crying than girls did (34). This increase in sex differences with age probably reflects the better developed sex-typing of the older children. Two-year-olds have not yet learned sex-appropriate patterns of aggressive expression. By 4, however, boys and girls have achieved fairly well-defined masculine and feminine identifications, and hence react with the culturally accepted aggressive patterns for their own sex.

A follow-up observational study of some of the subjects a year later revealed that the child's proneness to aggression while in nursery school was a good predictor of his aggressive behavior in kindergarten. There was a high degree of consistency from one year to the next in frequency of social conflicts for individual children (rank order correlations ranging from + .79 to + 1.00 in different groups). Although frequency and duration of conflicts varied with age and immediate environmental conditions, children ordinarily maintained their relative positions in the group with respect to frequency of aggressive expression (34). It may be concluded that even by this age, aggressivity has become a fairly stable personality characteristic.

The Fels longitudinal studies indicate that occurrence of temper tantrums during the preschool years is more predictive of later irritability and aggressive behavior in adolescent and adult males than in females. That is, indices of aggressive behavior in childhood are more stable for boys than for girls during childhood and adolescence (40).

Since we shall refer to this study frequently in the remaining chapters of this book, let us briefly summarize the nature of the investigation. The sample consisted of 36 men and 35 women (age-range, 20 to 29) who had been studied and observed from birth through adolescence. The information about each child was based on observations in the home, in the Fels experimental nursery school and day camp, in the public school setting, and in interviews with the child. In addition, the mothers of these children were interviewed at the Institute and observed in the home in order to assess their attitudes and practices with the child.

One psychologist, who had no knowledge of the adult personalities of these subjects, studied all the observations on these children for four separate age periods: birth to age 3; 3 to 6; 6 to 10; and 10 to 14 years of age. After studying all the material for each child from birth to age 3, he rated the children individually on a variety of behaviors. After rating all the children for the first three years, he then rated all the children for age 3 to 6, then for age 6 to 10, and finally for age 10 to 14.

A second psychologist, who had no knowledge of the childhood behavior of these subjects, interviewed each of them as adults and rated

their adult behavior for variables that corresponded to those rated for the person as a child (e.g., aggression, dependency, withdrawal response to stress, mastery, sex-typed interests, involvement in intellectual activities). Following the interview, the adults were tested in a variety of situations.

In order to assess the stability or continuity of childhood behaviors, the ratings for the various behaviors displayed during each of the four childhood periods were correlated with each other and with the adult interview ratings—the latter, of course, being used to assess the adult's personality.

Not only were rage and tantrum behaviors more stable for boys than for girls from ages 3 through 14, but such rage behavior was a better predictor of aggressive behavior for adult men than for adult women. That is, those boys who showed extreme degrees of rage and tantrum behavior during the preschool and early school years were the men who were most easily angered and likely to express verbal aggression when they were frustrated. This continuity of aggression was not found among females (40).

The most reasonable interpretation of this finding is that aggressive behavior is much more an accepted component of traditional masculine behavior (i.e., sex-typed behavior) than it is of traditional feminine behavior. Aggression in girls typically meets with more punishment than it does in boys, and the role models young girls choose for identification are less likely to be overtly aggressive. For these reasons, young girls who are aggressive will gradually inhibit open expression of aggressive behavior, while aggressive boys, who are allowed more behavioral freedom to express their resentments, will continue to manifest this class of behavior.

Quarrels

While quarrels do not involve physical aggression, they can be at least as wearing to parents and nursery school teachers. Fortunately, however, quarrels at this age, although frequent, are seldom serious.

Analysis of 200 quarrels of 40 preschool children indicated that boys argued more than girls, and older children participated in fewer, but somewhat longer-lasting, quarrels than younger ones. Disputes occurred most frequently between children of the same sex but of different ages. Although younger children frequently precipitated quarrels, they took less aggressive roles and offered little resistance to the more violent behavior of the older ones (15).

Like their other conflicts, children's verbal disagreements were generally brief and recovery was rapid. Cheerfulness followed quarrels much more commonly than resentment. Apparently at this age children's emotions are quickly aroused and quickly dissipated. Since quarrels provide opportunities for new learning, the investigator recommends that parents ordinarily allow children to fight their own battles (15).

Both "desirable" (friendly, affectionate, sympathetic) and "undesirable" (aggressive, hostile, quarrelsome) responses must be tried out in the process of socialization. Aggressive behavior may be regarded as a normal by-product of the child's broadened social contacts. Parents and teachers may become justifiably concerned with unusually frequent or overly intense hostility in children, but a certain amount of aggression seems to be a usual concomitant of social "experimentation."

SUMMARY. Aggression is a more frequent response in boys than in girls and is more stable for boys during childhood. A home environment that is severely frustrating to the child will predispose him to develop strong aggressive motives. Rejection, inconsistent handling, severe restrictions, and physical punishment are highly frustrating experiences. In addition, the use of physical punishment presents the child with an example of the effectiveness of aggression in hurting and dominating people. If the child has little guilt and anxiety about aggressive expression, he is likely to become overtly aggressive. The amount of overt aggression a child expresses depends upon both the degree of instigation to aggression (i.e., frustration) and the amount of anxiety that is attached to this behavior.

Dependency

Dependent motives during the preschool period may be manifested in behavior through seeking help with problems, requests for assurance, clinging to adults, reluctance to be separated from adults, and soliciting affection and support.

In general, mothers gradually begin to encourage independent behavior during this period, and become increasingly impatient when their child behaves in a very dependent manner. By the time the child is 5 years old, his mother expects him to dress himself, to attend to himself at the bathroom, to solve minor problems without help, and to be able to play alone without constant attention. Independence of action is rewarded by most mothers. If the mother who makes demands for independence is nurturant, her child will be motivated to comply with her requests and excessively dependent behavior should diminish.

Many 5-year-olds give frequent evidence *both* of help-seeking and

dependent clinging to adults, as well as independent, autonomous action (initiation of activities, doing routines alone, trying to complete activities) (6, 7, 8, 28). Apparently the child of this age is likely to be in conflict about seeking nurturance from others and dealing with the world independently. Children who show both dependent and independent behavior in a nursery school setting are probably more conflicted about dependency than those who consistently act dependently or independently. It is important to recognize that dependent behavior alone may not be an accurate index of the intensity of the child's basic needs for help and support. Some children have learned that it is important to be independent, and they try to inhibit overt help-seeking behavior in many situations.

Theoretically, a mother who always rewards dependency and rarely punishes it should produce a dependent child. Children reared in an extremely rejecting environment during their earliest years may not behave dependently because dependent behavior was frequently punished or at least rarely rewarded.

Empirical research supports, to some degree, these theoretical expectations. Absence of maternal nurturance during the first 3 years of life was found to be associated with minimal dependent behavior during the preschool years (63). However, the children in these studies grew up in environments that were atypically rejecting and not representative of the average American family. In two other studies (40, 62) with more representative groups of mothers, it was found that both consistent maternal reward of dependency and inconsistent reward and punishment were associated with relatively high degrees of dependent behavior in the child. The data are still inconclusive, and the best statement that can be made at this time is that warmth and acceptance do not necessarily produce dependent behavior in 5-and-6-year-old children, especially if the mother values independence. However, if the mother rewards dependency consistently, the child is apt to develop strong dependent responses.

Relation of Dependency to Other Aspects of Socialization

During early childhood dependent behavior is more frequent among girls than among boys. For example, in a free play situation, girls 3 to 9 years of age show more dependent overtures to adults than boys (13). Moreover, in contrast to aggression, dependent behavior is more stable for girls than for boys from the age of 3 to the age of 14 (38, 40). For example, a dependent 5-year-old girl is apt to become a dependent adoles-

cent and young adult, but it is more difficult to predict future dependency for adolescent boys from their preschool behavior. This finding suggests that anxiety over expressing dependent behavior is less intense for girls than it is for boys, because dependency is more an accepted component of traditional feminine behavior than it is of traditional masculine behavior. Thus, conflict over violating sex-role standards for dependency leads to inhibition of this type of behavior among most boys.

Dependent children (as evidenced by a desire for affection; close proximity to the teacher) have been found to be less aggressive following frustration than nondependent children with a low need for affection (54). This suggests that frustration has a differential effect on the child, depending on the child's initial level of dependency. A dependent child may be less likely to react with aggression than a nondependent child because the former is anxious over possible loss of love if he behaves in a socially prohibited manner. Since dependent children look to parents for nurturance, they are more threatened by possible rejection, and more likely to adopt the prohibition of adults. Similarly, children who seek out peers for help and support (i.e., are dependent upon peers) are more compliant toward peers when a request or demand is made of them.

Using a situation in which children's need for nurturance was manipulated, Hartup (25) showed that children who were dependent upon adults were highly motivated to learn a task when the reward was the verbal approval of the experimenter. Thirty-four preschool children were divided randomly into two groups. One group was consistently nurtured by a female experimenter (e.g., she played and talked with the child). The second group was first nurtured, and then the experimenter suddenly withdrew the nurturance, ceasing to talk and play with them. It was assumed that this treatment would increase the motive for nurturance in a child because the child was deprived of a pleasant goal. Finally, each child was asked to learn a simple task and was verbally praised for a good performance. The group that experienced withdrawal of the experimenter's nurturance (and presumably had a stronger need for adult approval and attention) learned with greater speed under these conditions. Moreover, boys who were highly dependent, according to earlier observations, were more strongly influenced than independent boys by the withdrawal of nurturance. Apparently, a child's need for attention and nurturance (or his anxiety over loss of nurturance) was heightened as a result of the experimenter's social withdrawal after talking to him. Consequently, the experimenter's praise, after withdrawal, was a particularly effective reward and led to faster learning.

An independent study of preschool boys and girls yielded similar results (23). The individual child was verbally rewarded by an experimenter if he made the correct response in a simple marble game. If a child played the marble game following a period of playing alone (i.e., deprivation of nurturance), the verbal reinforcement was more effective than if no period of deprivation occurred. Thus, absence of an adult with whom the child desires interaction may lead to heightened needs for attention and approval (i.e., dependency needs). As in the previous study (25), the greater the child's tendency to seek approval in other situations, the more dramatic was the effect of adult praise following a period of deprivation.

Moreover, the boys and girls differed with respect to the sex of the adult who was most effective in gratifying their needs for nurturance. The child's level of performance on the marble game was highest when the child was a boy and the experimenter was a woman. Thus, nurturance from a woman was "worth more" to a preschool boy than nurturance from a man. Nurturance from a man, on the other hand, seemed more important to the preschool girl than nurturance from a woman. This phenomenon may not be true of older children, since school-age boys, who regard men as ego ideals, should be more likely to value the approval and praise of a man than a woman.

These studies illustrate how dependency motivation can be aroused, and the kinds of people that are most effective in gratifying the child's desire for nurturance. They also indicate that a child with a strong need for nurturance (high dependency motivation) will work hard to learn various tasks in order to obtain adult nurturance and praise. Since the school situation is one in which the child is asked to learn a task in order to obtain the teacher's praise, boys who are dependent on their mother may do better in the first few years of school than extremely independent boys. The data from the Fels longitudinal study indicate that boys rated as highly dependent during the first 6 years of life were more highly motivated in school than the more independent boys.

SUMMARY. There are many parallels between dependent and aggressive behavior and their development. Both kinds of behavior involve approach-avoidance conflicts. That is, the child desires to be helped or to express his anger, but may be anxious about open display of these behaviors. Parental reward of these behaviors will increase their probability of occurrence; consistent parental punishment will lead to a decrease in their occurrence. Inconsistency in the pattern of rewards and punishments seems also to lead to high frequency of occurrence of the behavior. The socialization of extreme forms of both aggression and dependency is

based on the desire to please the parents, anxiety over loss of love, and identification motives. Aggressive children seem to react to frustration with counteraggression more often than dependent children. Finally, there are important sex differences in the amount of anxiety attached to these behaviors, because of sex-typing. Girls are more conflicted over aggression because this response is not appropriate for the female role, whereas boys are more anxious over expressing dependent behavior.

Hopefully, this discussion of some of the conditions influencing dependency or aggression should leave the reader with a keen appreciation for the complexity of human behavior and the multiplicity of factors that interact in determining a single response. Dependency upon a teacher, for example, is influenced by the pattern of reward and punishment emanating from the parents, the degree of dependent behavior displayed by the models the child has chosen for identification, and the degree to which the child is motivated to adopt traditional sex-typed characteristics. When these factors arrange themselves in ways that favor expression of dependent behavior, it is relatively easy to predict how the child will behave. But if there are inconsistencies (e.g., the parents punish dependency in their son, but both parents are highly dependent themselves), it becomes extremely difficult to predict how a particular child will behave. These kinds of inconsistencies are not uncommon, and until psychology finds better ways to measure all the forces that determine a response, prediction of a particular child's behavior in a particular situation will continue to be a challenge of no mean proportion.

Mastery Behavior

Mastery behavior refers to the child's attempts to increase his proficiency at various skills (e.g., reading, writing, painting, gross motor tasks). The desire to master skills is often referred to as achievement motivation. By age 5, the child has developed many skills, and most children are eager to test their proficiency in new areas of competence. Others seem reluctant or afraid. Unfortunately, there has been little direct research on mastery or achievement motives in children of this age.

In one study, young children were allowed to complete the first puzzle given them, but made to fail a second one. Later they were asked whether they wanted to try to finish the puzzle they failed or do the easier one. Among preschool children, there were no striking sex differences in the desire to try the failed task. With increasing age, however, boys showed a greater need than girls to master problem situations. Thus,

among children in the primary grades, boys were more likely than girls to want to try the failed puzzle (13).

Parental Influences on Achievement Behavior

In another study of children aged 3 to 5 (14), the children whose mothers rewarded and encouraged attempts at achievement were likely to initiate achievement oriented play, both in the home and in the nursery school setting (colored, painted, made clay models, read books). It is of interest that observation of these "achievement-rewarding mothers" revealed that they tended to ignore the child's requests for help, but rewarded the child when he sought approval for something he had done.

Several studies have demonstrated the long-term effect of early maternal encouragement of independence and achievement behavior in the child. Boys with mothers who rewarded independence during the early years (praised the child, expressed affection to him) were high on achievement motivation (told stories reflecting a desire for mastery) when they reached school age (68).

Moreover, mothers who encouraged walking and talking during the first 3 years of life (i.e., encouraged mastery of these early skills) had children whose achievement level in school was higher than that of children whose mothers were less encouraging of mastery (40). Rewarding the acquisition of these developmental skills may have fostered the desire to learn new skills and perform well in school.

Girls with mothers who rewarded intellectual development during the first 3 years showed substantial increases in IQ during the years 6 through 10. These girls also showed a high degree of concern with mastery and competition according to personality tests. For example, a girl with an achievement-rewarding mother responded to a picture of a boy with a violin by telling a story in which a boy is "practicing the violin and wants to be good so he can play in Carnegie Hall." In contrast, a girl with a nonachievement-rewarding mother would reply, "The boy doesn't want to practice and wants to go out and play" (50).

Stability of Achievement

Achievement behavior, especially in the intellectual area, is one of the most stable aspects of a child's personality. Girls and boys who show a strong desire to perfect and master intellectual skills during the preschool years tend to retain this motivation during adolescence and early adulthood (50). The child who enters school with a desire to do well is likely to develop into the adult who is concerned with intellectual competence.

In summation, although the amount of research on the development of achievement and mastery behavior is less than that dealing with aggression or dependency, several conclusions may be drawn. Maternal reward of achievement efforts during the early years tends to produce a high level of achievement concern and behavior in the school-age child. Since mastery behavior is not socially tabooed and, hence, not as anxiety-arousing as sexuality, aggression, or dependency, there is apt to be a closer relation between achievement motivation and achievement behavior. Further, achievement behavior is not as sex-typed as aggression or dependency, and is socially appropriate for both sexes. It tends, therefore, to be stable for both boys and girls from early childhood through the elementary and high-school years. As a matter of fact, preschool achievement behavior can be a sensitive clue to the child's achievement behavior in later years.

Parental Restrictiveness and Aggressive, Dependent, and Mastery Behavior

A group of studies conducted by Baldwin and his coworkers at the Fels Research Institute (2, 3, 4, 5) was concerned with the effect of democracy in the home on the child's aggressive, mastery, and competitive behavior. In this research, a "home visitor" visited the children's homes, observed the general family atmosphere and parent-child interactions, wrote a critical summary of the findings, and rated the home on 30 carefully defined scales.

These scales, called the Fels Parent Behavior Rating Scales, are shown in Fig. 33. Taken together, they provide objective, well-rounded descriptions of the domestic situation. Moreover, they permit systematic examination of the relationships between home environment and children's characteristics.

Of course, the 30 scales are not entirely independent of each other; many of them are positively intercorrelated. Groups of related variables, called *clusters* or *constellations*, are assumed to measure some common aspect or area of parent behavior. In Fig. 33, the scales are grouped into nine clusters listed in the left column (4).

DEMOCRATIC AND CONTROLLED ATMOSPHERES. Baldwin (2) has studied the relationships between two of these clusters, *democracy* and *control* in the home, and children's behavior in nursery school. The democratic home atmosphere is characterized by general permissiveness, avoidance of arbitrary decisions, and a high level of verbal contact between parents and child (consultation about decisions, explanations of reasons for family rules, supplying answers to satisfy the child's curiosity). "Controlled"

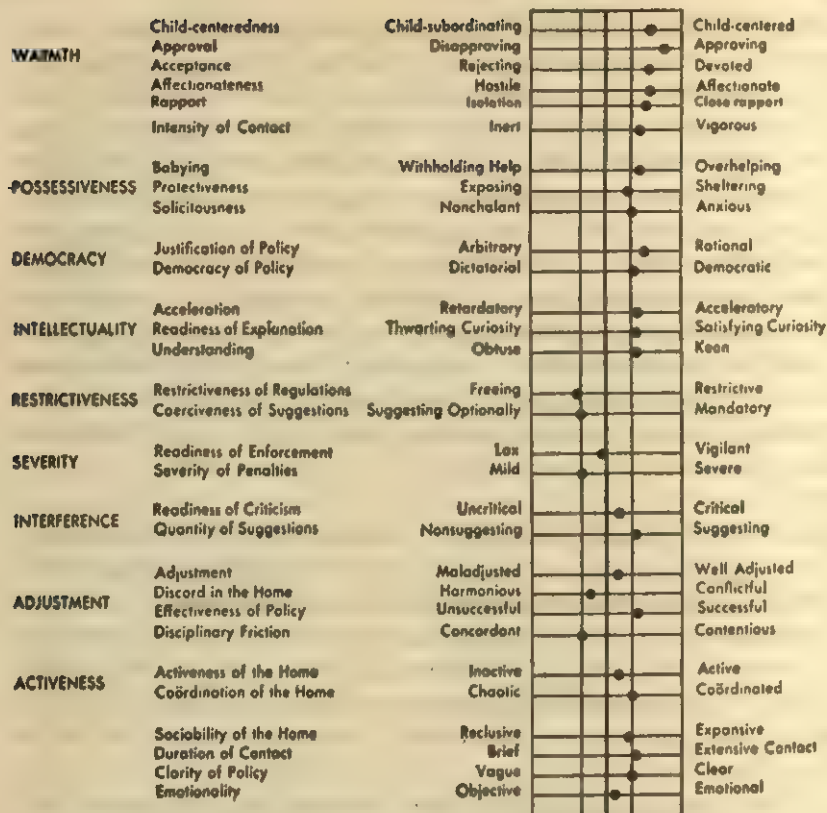


FIG. 33. Ratings of a warm, democratic home on the Fels Parent Behavior Rating Scales. (After A. L. Baldwin, J. Kalhorn, and F. H. Breese, *Patterns of Parent Behavior. Psych. Monog.*, 1945, 58, No. 3.)

homes emphasize clear-cut restrictions on behavior, and consequently, friction over disciplinary procedures is low.

The subjects in this study were 67 4-year-old nursery school pupils whose homes had been visited and evaluated. Nursery school teachers and observers rated the children's behavior in school.

Those from democratic homes were generally active, competitive, and outgoing. They ranked high in aggressiveness, leadership, planfulness, and cruelty, and tended to be more curious, disobedient, and nonconforming. If, in addition to democracy, there was a great deal of parent-child interaction (*activity*) in the home, these characteristics were most pronounced. In democratic, but relatively inactive, homes, characterized by more detachment, fewer verbal interchanges, and less leadership in the

parent-child relationship, the consequences of democratic atmosphere were less marked.

Children from homes rated high in *control* showed relatively little quarrelsomeness, negativism, disobedience, aggression, playfulness, tenacity, or fearlessness. Homes characterized by *authoritarian control* (*high control* together with *low democracy*) produced quiet, well-behaved, non-resistant children who were socially unaggressive. Apparently in these homes, conformity, which was associated with restricted curiosity, originality, and fancifulness, was obtained at the expense of freedom of expression. Of course, democratic parents run the risk of producing too little conformity to cultural demands in their children. However, in the groups of homes investigated in this study, there was a positive correlation between democracy and control, i.e., most democratic parents practiced enough control to avoid the pitfalls of extreme nonconformity.

In a supplementary study, this same investigator (3) described the consequences of three clusters of home variables—*democracy*, *warmth*, and *indulgence*—on children's personalities. The subjects were 56 nursery school children between the ages of 36 and 60 months who were rated on a battery of 45 behavior and personality variables.

Democracy in the home was found to be associated with *warmth*, i.e., most highly democratic families provided strong emotional support for the child. Children from these homes were socially outgoing in both friendly and hostile ways, participating actively in school events, expressing aggression, and generally asserting themselves quite strongly. Their bossing and aggressiveness seemed to be socially successful and they enjoyed superior status in their own group. Moreover, the democratic home environment seemed to promote intelligence, curiosity, originality, and constructiveness.

Indulgence (babying, protecting) appeared to foster the development of the opposite kinds of personality characteristics. Children from these homes were relatively inactive, unaggressive, lacking in originality, and of inferior social status. In addition, indulged children were apprehensive of physical activity and lacked skill in muscle activities.

Thus "the effect of the democratic home as contrasted to the nondemocratic one is to stimulate the child in such a way that he is more actively engaged in peer-centered activities, that he is more successful in those activities, and that he is better able to contribute original creative ideas to the groups with which he interacts" (3, 62).

The general conclusions of these studies have major practical as well as theoretical significance. Apparently certain socially valuable be-

haviors and personality characteristics are created by the use of democratic child-rearing procedures. However, these techniques will probably be effective only if they are consistent with the parents' personalities and attitudes (5). If rigid, authoritarian parents attempt to employ democratic procedures they are likely to find them difficult and frustrating. This may produce a tense home situation which, as we shall see later, may be detrimental to the emotional health of the preschool child.

These research findings support predictions based on learning theory. In the permissive, democratic home the child is rewarded for participating in group decisions, doing things spontaneously, expressing opinions and feelings, attempting new ways of doing things, and asserting his rights, views, and ideas. These become his habitual responses at home and they are consequently generalized to other social situations, e.g., the nursery school. On the other hand, the child who is highly indulged, babied, and overprotected has not learned these responses. He is unlikely to have received many rewards for doing things independently, for expressing himself freely, or for trying out new activities. Fearing for the child's safety or threatened by his growing independence, his parents may punish (or at least discourage) outgoing responses, independent efforts, and activities involving physical manipulation. Consequently, the child displays timidity, awkwardness, and apprehension.

AUTOCRATIC AND DEMOCRATIC HOMES. Radke (57) used different research techniques in her investigation of the relationships between parental attitudes and child-rearing practices and the behavior of preschool children. Her subjects, 19 boys and 24 girls between the ages of 3 years 10 months and 5 years 10 months, were enrolled in nursery school or kindergarten. Data on their behavior, attitudes, and adjustments were obtained through teacher ratings, interviews, doll-play sessions, and pictorial projective tests. Their mothers and fathers were interviewed and answered lengthy questionnaires dealing with many aspects of parent-child relations: autocratic or democratic control, restrictions on the child, severity of punishment, rapport, joint or individual parental responsibility for the child's discipline.

Compared with children from autocratic homes, those from democratic home atmospheres were rated as stable emotionally and more successful in interpersonal relationships. They were inclined to be more competitive, more considerate of others, more sensitive to praise or blame, and less quarrelsome.

"Freedom-giving" homes—those in which parents exert relatively little control over the child's life, to a great extent allowing him to be on his

own and to do what he likes—produced youngsters who were more competitive, less passive, and more popular than children of restrictive parents. Mild discipline in the home was related to rivalry, sensitivity to others' opinions, considerateness, popularity, affection, and talkativeness. Severe discipline was associated with the opposite kinds of characteristics, lack of rivalry, insensitivity, and unpopularity.

The "democratic" and "freedom-giving" homes in this study strongly resemble Baldwin's "democratic atmosphere" homes. Thus, despite the differences in subject populations and investigatory methods, the two studies reach conclusions which agree in most respects.

REFERENCES AND ADDITIONAL READING

1. Bach, G. R. Young children's play fantasies. *Psychol. Monogr.*, 1945, 59, No. 2.
2. Baldwin, A. L. Socialization and the parent-child relationship, *Child Developm.*, 1948, 19, 127-136.
3. Baldwin, A. L. The effect of home environment on nursery school behavior. *Child Developm.*, 1949, 20, 49-62.
4. Baldwin, A. L., Kalhorn, J., & Breese, F. H. Patterns of parent behavior. *Psychol. Monogr.*, 1945, 58, No. 3.
5. Baldwin, A. L., Kalhorn, J., & Breese, F. H. The appraisal of parent behavior. *Psychol. Monogr.*, 1949, 63, No. 299.
6. Beller, E. K. Dependency and independence in young children. *J. genet. Psychol.*, 1955, 87, 25-35.
7. Beller, E. K. Dependency and autonomous achievement striving related to orality and anality in early childhood. *Child Developm.*, 1957, 28, 287-315.
8. Beller, E. K. Exploratory studies of dependency. *Transac. N. Y. Acad. Sciences*, 1959, 21, 414-426.
9. Bennett, E. M., & Cohen, L. R. Men and women: Personality patterns and contrasts. *Genet. Psychol. Monogr.* 1959, 60, 101-153.
10. Blum, G. *Psychoanalytic theories of personality*. New York: McGraw-Hill, 1953.
11. Bronfenbrenner, U. Freudian theories of identification and their derivatives. *Child Developm.*, 1960, 31, 15-40.
12. Brown, D. G. Sex-role preference in young children. *Psychol. Monogr.*, 1956, No. 421, 70, 1-19.
13. Crandall, V. J., & Rabson, Alice. Children's repetition choices in an intellectual achievement situation following success and failure. *J. genet. Psychol.*, 1960, 161-168.
14. Crandall, V. J., Katkovsky, W., & Preston, Anne. A conceptual formulation for some research in children's achievement development. *Child Developm.*, 1960, 31, 787-797.
15. Dawe, H. C. An analysis of two hundred quarrels of preschool children. *Child Developm.*, 1934, 5, 139-157.

16. Eggan, D. The general problem of Hopi adjustment. In C. Kluckhohn and H. A. Murray (Eds.), *Personality in nature, society, and culture*. New York: Knopf, 1953.
17. Emmerich, W. Parental identification in young children. *Genet. Psychol. Monogr.*, 1959, **60**, 257-308.
18. English, O. S., & Pearson, G. H. J. *Emotional problems of living*. New York: Norton, 1945.
19. Fauls, Lydia, & Smith, W. D. Sex-role learning of five-year-olds. *J. genet. Psychol.*, 1958, **89**, 105-117.
20. Freud, S. *An outline of psychoanalysis*. New York: Norton, 1949.
21. Gardner, R. L. An analysis of children's attitudes toward fathers. *J. genet. Psychol.*, 1947, **70**, 3-28.
22. Gewirtz, J. L., & Baer, D. M. Deprivation and satiation of social reinforcers as drive conditions. *J. abnorm. soc. Psychol.*, 1958, **57**, 165-172.
23. Gewirtz, J. L., & Baer, D. M. The effect of brief social deprivation on behaviors for a social reinforcer. *J. abnorm. soc. Psychol.*, 1958, **56**, 49-56.
24. Greenberg, P. J. Competition in children: an experimental study. *Amer. J. Psychol.*, 1932, **44**, 221-249.
25. Hartup, W. W. Nurturance and nurturance-withdrawal in relation to the dependency behavior of preschool children. *Child Developm.*, 1958, **29**, 191-201.
26. Hartup, W. W., & Zook, Elsie A. Sex role preferences in 3 and 4 year old children. *J. consult. Psychol.*, 1960, **24**, 420-426.
27. Hattendorf, K. W. A study of the questions of young children concerning sex: a phase of an experimental approach to parental education. *J. soc. psychol.*, 1932, **3**, 37-65.
28. Heathers, G. Emotional dependence and independence in nursery school play. *J. genet. Psychol.*, 1955, **87**, 17-57.
29. Hollenberg, E., & Sperry, M. Some antecedents of aggression and effects of frustration on doll play. *Personality*, 1950, **1**, 32-43.
30. Honigsmann, J. J. *Culture and personality*, New York: Harper, 1954.
31. Huschka, M. The incidence and character of masturbation threats in a group of problem children. *Psychoanal. Quart.*, 1938, **7**, 338-356.
32. Isaacs, S. *Social development in young children: a study of beginnings*. New York: Harcourt Brace, 1933.
33. Jenkins, J. J., & Russell, W. A. An atlas of semantic profiles for 360 words. *Amer. J. Psychol.*, 1958, **71**, 688-699.
34. Jersild, A. T., & Markey, F. V. Conflicts between preschool children. *Child Developm. Monogr.*, 1935, No. 21.
35. Kagan, J. The child's perception of the parent. *J. abnorm. soc. Psychol.*, 1956, **53**, 257-258.
36. Kagan, J. The concept of identification. *Psychol. Rev.* 1958, **65**, 296-305.
37. Kagan, J. & Moss, H. A. The stability and validity of achievement fantasy. *J. abnorm. soc. Psychol.*, 1958, **58**, 357-364.
38. Kagan, J., & Moss, H. A. The stability of passive and dependent behavior from childhood through adulthood. *Child Developm.*, 1960, **31**, 577-591.

39. Kagan, J., & Lemkin, J. The child's differential perception of parental attributes. *J. abnorm. soc. Psychol.*, 1960, **61**, 446-447.
40. Kagan, J., & Moss, H. A. *Birth to maturity: a study in psychological development*. New York: Wiley, 1962.
41. Kagan, J., Hosken, Barbara, & Watson, Sara. The child's symbolic conceptualization of the parents. *Child Developm.*, 1961, **32**, 625-636.
42. Koch, H. L. Sissiness and tomboyishness in relation to sibling characteristics. *J. genet Psychol.*, 1956, **88**, 231-244.
43. Koch, H. L. Some emotional attitudes of the young child in relation to characteristics of his siblings. *Child Developm.*, 1956, **27**, 393-426.
44. Levin, H., & Sears, R. R. Identification with parents as a determinant of doll play. *Child Developm.*, 1956, **27**, 135-153.
45. Levy D. M. *Maternal over-protection*. New York: Columbia Univ. Press, 1943.
46. Macfarlane, J. W., Allen, L., & Honzik, M. P. A developmental study of the behavior problems of normal children between 20 months and 14 years. *Univ. of California Publications in Child Developm.*, 1954, No. 2.
47. Maccoby, E. E. Role taking in childhood and its consequents in social learning. *Child Developm.*, 1959, **30**, 239-252.
48. Malinowski, B. Prenuptial intercourse between the sexes in the Trobriand Islands, N. W. Melanesia. *Psychoanal. Rev.*, 1927, **14**, 20-36.
49. McDavid, J. W. Imitative behavior in preschool children. *Psychol. Monogr.*, 1959, **73**, No. 486.
50. Moss, H. A., & Kagan, J. The stability of achievement and recognition seeking behaviors. *J. abnorm. soc. Psychol.*, 1961, **62**, 504-513.
51. Mowrer, O. H. *Learning theory and personality dynamics*. New York: Ronald, 1950.
52. Murphy, G. *Personality*. New York: Harper, 1947.
53. Mussen, P. H., & Distler, L. Masculinity identification and father-son relationships. *J. abnorm. soc. Psychol.*, 1959, **59**, 350-356.
54. Otis, N. B., & McCandless, B. R. Responses to repeated frustrations of young children differentiated according to need area. *J. abnorm. soc. Psychol.*, 1955, **50**, 349-353.
55. Pintler, Margaret H., Phillips, Ruth, & Sears, R. R. Sex differences in the projective doll play of preschool children. *J. Psychol.*, 1946, **21**, 73-80.
56. Rabban, M. Sex-role identification in young children in two diverse social groups. *Genet. Psychol. Monogr.*, 1950, **42**, 81-158.
57. Radke, M. J. The relation of parental authority to children's behavior and attitudes. *Inst. Child Welf. Monogr.* No. 22. Minneapolis: Univer. of Minn. Press, 1946.
58. Sears, P. S. Doll play aggression in normal young children: influence of sex, age, sibling status, father's absence. *Psychol. Monogr.*, 1951, **65**, No. 6.
59. Sears, R. R. Identification as a form of behavior development. In D. B. Harris (Ed.), *The concept of development*. Minneapolis: Univer. of Minn. Press, 1957, 149-161.
60. Sears, R. R., Pintler, M. H., & Sears, P. S. Effect of father separation on

- preschool children's doll play aggression. *Child Developm.*, 1946, 17, 219-243.
61. Sears, R. R., Whiting, J. W. M., Nowlis, V., & Sears, P. S. Some child rearing antecedents of aggression and dependency in young children. *Genet. Psychol. Monogr.*, 1953, 47, 135-234.
 62. Sears, R. R. Maccoby, E. E., & Levin, H. *Patterns of child rearing*. Evanston, Illinois: Row, Peterson, 1957.
 63. Spitz, R., & Wolf, Katherine. Anaclitic depression; an inquiry into the genesis of psychiatric conditions in early childhood. II. In A. Freud et al. (Eds.), *The psychoanalytic study of the child*. Vol. II. New York: Int. Univ. Press, 1946, 313-342.
 64. Strecker, A. *Their mothers' sons*. Philadelphia: Lippincott, 1946.
 65. Sullivan, H. S. *The interpersonal theory of psychiatry*. New York: Norton, 1953.
 66. Tyler, L. E. The relationship of interests to abilities and reputation among first-grade children. *Educ. Psychol. Meas.*, 1951, 11, 255-264.
 67. Walters, J., Pearce, Doris, & Dahms, Lucille. Affectional and aggressive behavior of preschool children. *Child Developm.*, 1957, 28, 15-26.
 68. Winterbottom, Marian R. The relation of need for achievement to learning experience in independence and mastery. In J. W. Atkinson (Ed.), *Motives in fantasy, action and society*. Princeton: Van Nostrand, 1958, 453-478.
 69. Wylie, P. *Generation of vipers*. New York: Farrar and Rinehart, 1942.
 70. Whiting, J. W. M., & Child, I. L. *Child training and personality*. New Haven: Yale Univer. Press, 1953.

10

THE PRESCHOOL YEARS: PERSONALITY DEVELOPMENT

II. REACTIONS TO CONFLICT AND ANXIETY AND INTERACTIONS WITH PEERS

Anxiety in one form or another and in varying degrees is common to everyone—child and adult. In some cases it may be minimal, and act chiefly as a spur to accomplishment. In others, it may be emotionally crippling and lead to ineffectiveness and despair. But for everyone, anxiety presents problems which are real and which must be handled in some fashion.

Most preschool children have to deal with several major sources of anxiety. The child may be anxious about expressing freely his aggressive, sexual, or dependent urges. He may be anxious about the possible dilution of parental love as a result of the arrival of a baby brother or sister. He may be apprehensive over rejection by age mates.

Everyone attempts to protect himself in some way from the uncomfortable feeling of anxiety. The characteristic ways in which individuals deal with anxiety are generally called *defenses*. Defenses range from simple, overt actions (e.g., running away, hiding one's eyes, going to sleep) to complex psychological processes (e.g., placing the blame on others, denial of one's actions, repression) that are popularly called *defense mechanisms*.

This chapter will describe the major defenses of preschool children and some of the conflicts that result from the beginning interactions with peers.

DEFENSES OF PRESCHOOL CHILDREN

The term *defense* generally refers to a learned response capable of reducing anxiety. Typically, the child is unaware of the presence of a

defense, and the specific defense chosen depends on the nature of the anxiety and on the child's general personality and previous learning history.

When a defense is used, some aspect of reality is usually distorted. The child may distort or exaggerate what he has seen, what he has heard, what he has done, or what he anticipates. For example, a child may have provoked a peer's rejection by attempting to dominate a playmate. Because it would be anxiety arousing to recognize that he was responsible for incurring the friend's wrath, the child may place the blame on the friend and explain to his mother, "Johnny wasn't nice to me today," or "Johnny is a bad boy." In this case, we say that the child has distorted the situation and has projected the blame for the interpersonal friction onto his friend.

In cases where recognition of an event is anxiety-arousing (e.g., a beloved parent has been killed), the child may temporarily deny that the traumatic event occurred in order to ward off the anxiety that would result from acknowledging the loss of his parent. Many children of this age have "imaginary playmates" to whom they turn for solace in a time of crisis (e.g., after being punished by a parent). For some children, the existence of the playmate is "real," and this reaction involves an obvious distortion of reality.

The Major Defenses of the Preschool Period

The major defenses of the preschool child include the overt behaviors of withdrawal and regression, and three mental sequences (or defense mechanisms) designed to reduce anxiety: denial, repression, and projection.

BEHAVIORAL WITHDRAWAL. One of the most frequently used defenses of preschool children is the direct avoidance of, or flight from, threatening situations or people. The child will hide his eyes or run to his room when a stranger enters the house; he will refuse to approach a group of strange children despite his desire to play with them; he will shy away from a jungle gym if he doubts his ability to climb it successfully.

The withdrawal response temporarily removes the child from the feared situation, but the tendency to withdraw becomes stronger each time the child practices this behavior. As a result, this defense is usually maladaptive, for the child who refuses to cope with stressful situations may eventually become fearful of all problems and stresses, and may never learn to handle adequately the crises that are inevitable in the course of development.

REGRESSION. Regression is the adoption—or, more accurately, the re-adoption—of a response that was characteristic of an earlier phase of development. Thumb sucking or bed wetting are examples of regressive behavior in children who have stopped this behavior for some period of time. In regression, the child is attempting to withdraw from a current anxiety-arousing situation to the more gratifying and less anxious state of infancy.

Regressive behavior frequently occurs when a new baby is brought into the home. Some 4-year-olds are made anxious by the anticipation that a new baby will displace them and obtain the love and attention that they have been receiving. By adopting infantile behaviors they attempt to gain attention and to retain desired parental nurturance.

DENIAL AND REPRESSION. The defense of withdrawal occurs when the child is confronted directly with an actual threatening situation (e.g., a stranger, an ocean), and must either face it directly or flee. More frequently, the source of anxiety is a thought or anticipated situation (e.g., anticipation of loss of parental love; of being punished for a misdeed; of being alone and deserted). Since the child cannot literally run away from his thoughts, he may attempt to “get rid of” the thought through a defense mechanism. For example, he may attempt either to deny the anxiety-arousing thought or to repress it.

In denial, the child insists that an anxiety-arousing event or situation is not true, and he believes his denial is accurate. For example, the child who has been openly rejected by his mother may deny that she is hostile, and insist that she is a kind and loving person. Some children who have been rejected by their families deny that these people are their parents. The child insists that he is adopted and that his true parents love him.

When repression is used, the child blots out the anxious or frightening event by removing it completely from awareness. Repression is neither a refusal to remember an event, nor a denial of its reality. Rather, the thought or event has been removed from consciousness by forces beyond the child's control. For example, the child may repress his memory of a violent argument between his parents or of resentful thoughts he has felt toward one of his parents. Although he was clearly aware of these thoughts at one time, after repression the child is unaware of them, and questioning him will not bring them to light.

There is a subtle distinction between denial and repression. In repression the child has no awareness of the frightening or painful thought (e.g., he cannot recall his parents' heated argument). In denial, the

anxiety-arousing thought is denied (e.g., he actively denies having heard the argument).

PROJECTION. Projection is the ascription of an undesirable thought or action to another person, when, in reality, the thought or action applies to one's self. The child of 5 often projects aggression and blame for misdeeds onto other people. For example, a child may be running after a playmate and in so doing bump into an adult. The child may project (i.e., attempt to place) the blame on the child he was chasing by saying, "He made me chase him. If he didn't make me chase him, I wouldn't have bumped into you." The plea, "He started the fight, Mother, not me" is one of the most common examples of projection in young children.

Although these defenses occur, at least occasionally, in many youngsters, and in that sense may be regarded as "normal," it must be remembered that they become stronger with practice. The adolescent who becomes anxious and withdraws from college after a difficult first semester is using a defense which probably had its origins in the practice of withdrawal during the preschool years. Although some defenses are common, and, therefore, not abnormal in the statistical sense, they can, if strengthened, eventually interfere with effective functioning and prevent the older child from behaving adaptively in many situations.

FRUSTRATION AND BEHAVIOR

While anxiety is followed by a defensive response, frustration typically is followed by some behavior directed at eliminating the source of the frustration or, at least, diluting its effect. Frustration is defined as the blocking of some desirable goal or lack of gratification of a motive. There is not complete independence between situations that are frustrating and those that lead to anxiety. That is, some situations are both frustrating and anxiety-arousing (e.g., loss of a parent, loss of a toy that has security value). Other situations are frustrating but may not have a strong anxiety component (e.g., inability to play with a desired toy, dominance by a peer, and parental restrictions). When a frustration elicits anxiety, defenses will occur. Frustration, like anxiety, has many important effects on the child's behavior, and, consequently, has been the focus of numerous investigations.

Frustration and Aggression

The antecedents of aggression were discussed earlier, and it was noted that aggressive responses are high in the hierarchy of responses to frus-

tration. This is because aggressive behavior is often an effective means of overcoming interference and, hence, is likely to be rewarded.

However, the situation is not always this simple. The studies reviewed in the last chapter indicate that punishment of aggression may produce inhibition of subsequent aggressive responses in the setting where they are punished (e.g., in the home), while permissiveness with regard to aggression may lead to greater frequency of aggressive responses. On the basis of these considerations and findings, it may be hypothesized that the extent to which children are likely to manifest aggression in a given situation is largely dependent upon (1) the amount of frustration in that situation, (2) the amount of permissiveness of, or punishment for, aggression in that situation, (3) the child's anxiety about aggressive expression, and (4) the ease with which *any* frustration elicits anger in the child (i.e., the child's tolerance for frustration).

A number of studies indicate that certain situations that are frustrating to the child are likely to provoke an increase in aggressive responses (62). In one experiment, 60 preschool children—30 boys and 30 girls—from lower-middle-class and professional families were divided into three groups. Each subject was observed in two half-hour doll-play sessions. In the first session, all subjects were allowed to play freely with the dolls. However, immediately before the second session, one group, the failure group, was given difficult tasks to accomplish and was left with feelings of failure and frustration. The second group was given pegboards and encouraged to manipulate the pegs for 20 minutes. This induced states of "satiation," which may also be regarded as frustrations. The third group, the control, had neither frustration nor satiation experiences before their second doll-play session.

All play behavior was recorded and analyzed in terms of a number of categories, including two types of aggressive play: stereotyped (e.g., arguing, scolding, threatening, isolation, deprivation, spanking, crying, running away, hiding, hitting, kicking) and nonstereotyped (intense, inappropriate, or highly individualistic forms of aggression such as hitting or beating injuriously and vigorously; breaking, crushing, or jumping on things; killing; intense physical fighting).

In the second session, all three groups displayed more total aggression than they had in the first session and shorter delays (latencies) before the first expression of aggression. As in other experiments, the permissive atmosphere of the doll-play situation weakened inhibition against the expression of aggression, and, consequently, such behavior increased.

Nevertheless, the influences of frustration and satiation on aggressive

expression were apparent. Subjects who were frustrated or satiated immediately preceding the second session showed significantly greater increases in aggression than the control group. Thus, as predicted from the hypothesis, frustration produced heightened subsequent aggression.

Observational studies of preschool children also indicate that frustrating nursery school situations are likely to elicit aggressive responses and that punishment for aggression in nursery school is likely to lead to the inhibition of overt aggression. For example, data from one study indicated that conflicts were more likely to occur when play space in the school was restricted and there was only limited supervision by teachers (29). In a small play area children were much more likely to interfere with (frustrate) each other than in a larger area. Under the circumstances, aggressive reactions were likely to occur frequently. Also, where there were only a few teachers, these reactions were not so likely to be prevented or punished. Consequently, aggressive responses occurred more frequently.

On the other hand, when many teachers were present, fewer aggressive interactions were allowed to develop. Furthermore, such reactions were probably punished if they did occur. Hence the number of conflicts in this situation was reduced (29).

In another relevant study, it was found that in a controlled, restrained nursery school (where aggressive responses were probably punished), children made relatively few aggressive *and* sympathetic responses (47). Children of the same age in a relatively unrestricted, permissive preschool, made significantly more responses of these sorts. According to the investigators, the findings demonstrate that "individual differences [in aggressive behavior] seem to be related not only to basic personality differences, but also to variations in the social environment. . . . These individual factors vary to such a great extent that without knowledge of them it is impossible to understand the aggressive behavior of children" (47, 27).

Frustration and Regression

Aggression is high in the hierarchy of responses to frustration, but it is not the only possible reaction. In an interesting and well-planned experiment, Barker, Dembo, and Lewin (6) demonstrated that the defense of regression (adopting less mature response patterns) may also be a consequent of frustration.

These investigators observed the behavior of 30 nursery school children, under two conditions, first, free play and later frustration. Regres-

sion was measured in terms of decreases in productivity, creativity, and constructiveness of play after frustration.

In the free-play situation, the children played alone for half an hour in a room which contained a standard set of play materials arranged on three large squares of paper. Behavior was recorded and units of play were scored on a 7-point scale of constructiveness from 2 (superficial examination of the playthings) to 8 (highly original, elaborate game or story involving the toys). Since these constructiveness scores were highly correlated with chronological and mental age ($+ .79$ and $+ .73$, respectively), they could be translated into mental age equivalents.

The frustration situation was divided into three parts. During the first stage, prefrustration, the child was brought into the experimental room, where he found the standard play material of the free-play period incorporated into an elaborate, highly attractive set of toys. After the child had become thoroughly involved in play with these new toys, the experimenter collected all the less attractive, standard toys. He arranged



FIG. 34. The frustration situation employed by Barker, Demko, and Lewin. (From the Iowa Studies in Child Welfare, Vol. 18, p. 57. With permission of the State University of Iowa.)

them, as they had been earlier, on three squares of paper in another part of the room. The child was led to that part of the room, and a wire screen separating the standard toys from the new ones was lowered and locked. This marked the beginning of the second phase of the frustration period. During this time, the child could play only with the less attractive play materials for 30 minutes, while the more desirable toys remained visible but inaccessible (see Fig. 34).

Following the frustration period, the partition was lifted and the child was allowed to play with the new toys for as long as he wished. This final period served no experimental purpose, but was designed to mitigate any undesirable consequences of the frustration.

Children's reactions during the second phase of the frustration period differed greatly from their behavior during free play when identical toys had been available. When frustrated, the children displayed significantly more barrier or escape activities (e.g., physically approaching the inaccessible regions, pleading with the experimenter to be allowed out of the room, talking about outside regions, and aggressive behavior toward experimenter or barriers). In addition, their play was appreciably less creative and constructive than it had been during free play. In other words, a marked reduction in the level of maturity of play was a consequence of frustration. Furthermore, the children who seemed to be most severely frustrated, i.e., those most occupied with barrier and escape behavior during the frustration situation, regressed most in their play.

Thus, all children did not behave similarly in the face of frustration. In a separate study (8), 14 boys and 8 girls (ages 2-4 to 4-6) were first tested to assess their ability to control immature, regressive behavior. In one test, the child was told that by turning a knob on a toy machine he could obtain as much candy as he wished, but if he stopped to taste a piece he would no longer receive any additional candy. The child was placed in the frustrating situation of wanting to taste the candy but also wanting to accumulate as much candy as he could.

In a second test, the child was asked to do a very simple and boring task (i.e., packing spools in a box). When he became bored, he was given a similar task (i.e., packing blocks in the box). It was assumed that the child who quickly became bored with the packing of spools and blocks was less able to tolerate the frustration of a monotonous task than the child who did not become bored.

Following these two tests of "ability to withstand frustration," each child was observed in a separate session in the frustration situation de-

scribed above in which the child was first allowed to play with attractive toys, and then was prevented, by a barrier, from playing with them. The child was left with a set of ordinary and less attractive toys on his side of the barrier. The children who were less able to tolerate the frustration on the two tests could not adequately control the feelings engendered by being frustrated (prevented from playing with the attractive toys). They were unable to play constructively with the ordinary toys, and often kicked the barrier aggressively. The children who had been able to tolerate frustration on the two tests (candy and block packing) did not become less constructive in their play with the ordinary toys.

It may be concluded that children differ in their ability to tolerate frustrating situations. For those who have a low tolerance for frustration, aggression and immature play are likely consequents of such frustration.

Constructive Reactions to Frustration

Both aggressive and regressive responses may be frequent, but not inevitable, consequents of frustration. Situational variables, such as group cohesiveness or the presence of friends, may affect the child's reactions to frustrating situations.

In one study, pairs of close friends and pairs of casual friends of preschool age were introduced into the experimental situation used in the Barker, Dembo, and Lewin study described above (60). During free play, strong friends spent more time in both solitary and social play activities than weak friends, and their play was generally more mature and constructive. While both groups reacted less maturely under conditions of frustration, strong friends showed significantly less decrement in creativity of play than casual friends. In other words, the differences in the play of pairs of strong and weak friends, observed during free play, became more marked under conditions of frustration. The presence of a close associate fostered highly constructive play under ordinary conditions and limited the adverse influence of frustration on creativity.

In addition, as another study indicated, close friends actually became more socially outgoing and cooperative in their play under frustrating circumstances (61). Compared with "weak" friends, they reacted with less hostility toward each other and with more joint aggression against the experimenter who was the source of their frustration. These data demonstrate that social cohesiveness and the presence of friends—and the personal security associated with these—not only mitigate responses to frustration, but may actually promote socially desirable behavior, such as cooperation, in response to interference.

These findings may be applied in situations where parents and teachers can anticipate that the child will become frustrated. If the child can meet difficulties or potentially frustrating situations accompanied by a person with whom he feels secure, he will probably behave in more constructive, mature ways than he would if he were alone.

Training and Changes in Children's Behavior to Frustration

Learning principles may be applied directly in teaching children acceptable and adaptive social behavior. As a result of reward, mature responses can acquire greater habit strength and become higher in the child's social response hierarchies than less effective behavior learned at an earlier developmental period. For example, composure, independent activity, attempts at problem solving, and systematic trial-and-error behavior can replace aggression or regressive behavior as reactions to failure and frustration. If the child has been rewarded frequently for meeting difficulties calmly and independently, he will become more self-confident and will manifest fewer uncontrolled, inadequate responses to frustration. One investigator (33, 34) trained children to inhibit the defense of withdrawal in failure situations, to work independently, and to persevere in their efforts to solve frustrating problems. Her subjects, 82 preschool children, were observed while working individually on two difficult problems, one involving solution of a puzzle and the other requiring great physical strength.

From this group, she selected 12 experimental subjects who showed withdrawal and regressive response to failure (e.g., retreating or giving up almost at once, crying, sulking). Each was given special training designed to teach him "to persist longer in the face of tasks that were difficult for him, to depend less on an adult for help in solving a problem, to give fewer rationalizations in the face of his failure, and to attack a problem and see it through with some composure" (33, 34). Another group of 12 children who gave slightly less evidence of immaturity in the test situations served as a control group. These children received no special training.

The training method consisted of introducing the child to a series of problems (picture puzzles and "block-boy" construction) of progressively increasing complexity. Subjects were given difficult problems only after they had experienced success at simpler ones.

During a 16-week training period, the experimenter met with each child in individual sessions lasting between 8 and 33 minutes, until the child was able to complete the training tasks. No direct assistance was

given during these sessions, but independent behavior was praised by statements such as "That was fine! You are learning to try hard and not to have anyone help you. You did that one all by yourself" (33). In addition to this, the experimenter occasionally gave encouragement or direct suggestions for problem solutions.

The level of difficulty of the tasks increased regularly as training progressed. Nevertheless, the subjects showed continuous gains in independence and interest in the problems, requesting help less frequently and persisting longer in the more difficult tasks. Spontaneous verbalizations by the subjects also revealed increased self-confidence and ability to sustain effort. For example, after failing twice in the construction of a block-boy, one child said "I am sure havin' a hard time, but I'm making him better. I think it will be better this time" (34).

After completion of training, the children were tested again in a difficult puzzle-box experiment similar to the original one. In this situation, the trained group made significantly more "attempts to solve alone" and "interest" responses than they had in the original test. They manifested no exaggerated emotional responses such as crying, yelling, sulking, or destructive behavior in the retest. Rationalization (making excuses for failures), asking assistance, and whining were much less frequent than they had been in the first test, while statements reflecting more constructive reactions were more common. In short, the composed, mature, independent responses learned in training were transferred to other problem situations. In retest situations, the group who had no special training did not show any significant improvement in handling frustration (34).

Apparently, the socially immature reactions to frustration, regression and withdrawal, are amenable to change. Through training, young children can be guided to greater frustration tolerance (ability to handle frustration). Moreover, the techniques learned during training may generalize to other situations where composure, independence, and persistence are required for successful problem solution.

The Modification of Submissive-Withdrawal Behavior

Another group of experiments illustrates ways in which learning principles may be applied to modify withdrawal behavior and make a child more dominant or more cooperative. In one experiment, each of 18 subjects was paired with 10 other children for five minutes of play in an experimental room containing a sandbox and a few attractive toys (cars, trucks, shovels, and animals) (24). During this time, the interactions of the pair were observed and all dominant reactions were recorded.

Dominance scores were based on the frequency of specifically defined responses indicating either "pursuing one's own purpose against interference" or "directing the behavior of one's companion."

Nursery school behavior records revealed that the six children who were most self-directed and dominant in the experimental situations were generally self-confident, while the six who were least dominant lacked this characteristic. The investigator, therefore, reasoned that building up the child's confidence might raise his dominance level. To test this hypothesis, she chose the five most submissive children as an experimental group and gave them special training designed to increase self-confidence. This consisted of a series of individual training sessions in which the subject was taught all the knowledge and skills necessary to master three tasks (making a cat with mosaics of different colors and shapes; putting together a picture puzzle; recalling a story which had been read to him). A control group was composed of five other submissive children who did not receive any special training.

Following these sessions, each child was observed in four pairings—each time with a different, originally more dominant child—in situations resembling those used in training. In these interactions, the trained children were more dominant than their companions (taking the lead in instructing them, demonstrating the use of materials, etc.).

As a final test, about 10 weeks after the initial tests were made, the trained children were again paired with peers in the original experimental situation (sandbox and toys). They showed significantly greater gains in dominance than untrained children did, four of the five showing marked changes. The dominance scores of the control group did not change significantly between the initial and final experimental tests (24).

These findings support the investigator's hypothesis that a child may gain in dominant behavior if his self-confidence is elevated. Moreover, this increase in confidence may transfer from the immediate situation in which the new learning occurs (in this case, the training situation) to other settings (such as the original test situation).

Other similar experiments reveal that moderately dominant children may also profit from special training, making gains both in situations similar to those used in training and in the original experimental setting (49). Training may affect the child's approach to many kinds of life situations, including routine nursery school interactions.

Increases in dominance following training may be manifested in both socially desirable and socially disapproved behavior. In another experiment, seven submissive youngsters were given training designed to increase their security and self-confidence (45). Afterward, they showed

gains in many categories of ascendance, some of which were judged (by 41 experts) to be socially acceptable, others unacceptable. Heightened self-confidence was followed by increases in both selfish, hostile responses and constructive, self-assertive reactions. Moreover, the trained group made more attempts at dominance behavior, and were much more frequently successful than they had been initially. In contrast, a control group of five untrained submissive children changed little between the initial and final tests, showing no particular trend in either dominant attempts or successful dominance.

Training for Increased Cooperation

Just as submissive children can be trained to be more dominant, extremely dominating children can be trained to become more cooperative. In one experiment, each of 71 preschool children was paired with five other children for five-minute periods in a room containing only one toy (11). Domination and cooperation scores were derived from records of behavior in this situation.

Of the 19 most dominating, uncooperative children, 10 were selected as an experimental group and given special help in understanding social situations and techniques of dealing with them. The other nine constituted a control group, which received no training or special attention.

The training program consisted of eleven 15-minute doll-play periods during which the experimenter told the child a story involving two dolls who had social difficulties or conflicts. The child and the experimenter discussed and analyzed the situations together, attempting to decide upon the most desirable ways of resolving the problems. Occasionally the child was asked to work out a solution by himself.

After the training period, the experimental and control subjects were again tested in the original situation (i.e., paired with another child in a room with only one toy). Compared with their initial test behavior, the dominating behavior of trained children was considerably diminished, and they made more cooperative responses. On the other hand, the behavior of the controls was essentially unchanged. The decrease of domination in the trained group—which was still evidenced a month later—was not accompanied by either an increase in submission or a decrease in general social participation. Apparently, socially desirable behavior can be fostered without restricting the child's social activity or his ability to maintain his standing with his peers. Children can be helped to become more cooperative without becoming victims of the domination of others (11).

Problem Behavior in Preschool Children

Some children are subjected to extreme degrees of frustration or anxiety, and, in such cases, the reactions may also be extreme. In most instances, these extreme reactions to frustration or anxiety are either socially inappropriate or prohibited, and hence are called "problem behaviors" or symptoms.

Incidence of "Problem" Behavior in Preschool Children

Almost all children display some behavior "problems," fears, or anxieties. Hence a child should not be considered "neurotic" or a "problem" unless the frequency and/or intensity of these reactions interfere with effective functioning or the enjoyment of normal social interactions.

INCIDENCE OF PROBLEM BEHAVIOR IN NORMAL CHILDREN. As part of her extensive longitudinal study of 252 randomly selected children, Macfarlane (38, 39) determined the incidence of each of 63 "problem" behaviors at each half-year interval during the preschool period. The average child of this age manifested between four and six problems.

Frequency was found to vary with age for most problems. Soiling and diurnal and nocturnal enuresis decreased with age and were eliminated in the order named. . . . Constipation, masturbation, and restlessness in sleep showed no trends with age for the preschool period. Thumbsucking decreased as nail biting increased. Overt tempers, fears, jealousy, and inferred oversensitiveness increased to around four and four and one half years and then began subsiding. Since temper tantrums, fears, and overt jealousy occur at one age level in more than 50 per cent of our children, they cannot sensibly be regarded as neurotic behavior when occurring in these early years, as so commonly assumed, but rather as evidence of tension or as adjustive devices (39, 313).

Certain of these problems tended to occur together, forming groups or clusters. For example, at year 5, four clusters could be detected. The first cluster, "suggesting a labile or disturbed" child consisted of: aggressive behaviors (i.e., quarrelsomeness, mood swings, negativism, irritability, temper tantrums, jealousy, and competitiveness). The second cluster involved psychological withdrawal and included withdrawal, introversion, submission, shyness, somberness, excessive reserve, and underactivity. The third cluster was made up of masturbation, unusual sex interest, and stammering; while the fourth involved diurnal and nocturnal enuresis and excessive modesty (39).

FACTORS ASSOCIATED WITH "PROBLEM" BEHAVIOR. Any particular problem may have different meanings for different children. "For example,

enuresis at five years in one child might be associated with poor muscle tonus, and in another with little or no attempts at toilet training; in a third it might appear symptomatic of marked tension and hostility following extremely drastic attempts at training before the child's psychomotor maturation permitted control" (39, 316).

Macfarlane also studied the relationship of familial variables, including economic status, parents' personalities, and marital discord, to specific kinds of children's problems. Of all the familial variables studied, marital maladjustment of the parents was most consistently and highly correlated with problem behavior in children (39).

Attention demanding, temper tantrums, negativism, food finickiness, overdependence, and daytime enuresis showed more recruits from families with unhappy or difficult marital adjustment. With increasing age, tempers and negativism showed increasing relationships with marital maladjustment during this early preschool period. Thumbsucking and nocturnal enuresis, on the other hand, showed more recruits from happy and mutual supporting marital relationships (39, 323).

Among these families, unsatisfactory marital adjustment was also associated with parental disagreement on discipline. Compared with relaxed mothers, those who were tense and anxious in their relationships with their children engendered more behavior problems.

In summarizing these findings, Macfarlane notes that

... when a home was psychologically unfavorable in only one or two respects, the youngster could usually run his course without much disturbance, provided the parents were themselves secure enough to give the child adequate security and affection. But in homes with a large number of unfavorable aspects, the youngster was likely to give indications of being disturbed in his emotional development and habits. Affection and security between and from the parents was found to be a major need for the children (39, 324).

Although the child of this age is highly flexible and his behavior will change if his life circumstances shift, the child with many problems at this age is more likely than his peers to have many difficulties later on. Since the data of this study were longitudinal, Macfarlane and her colleagues (40) were able to compute the correlations between the children's total number of problems at one age with the total number at all other ages from 3 to 14. The correlations were for the most part positive and, in many instances, relatively high. These findings suggest that, among children who do not get special psychotherapeutic help, boys and girls who have high problem scores (i.e., many problems) during the

preschool period are more likely to have a relatively large number of emotional difficulties later on (40).

Preschool Children's Fears

Every child learns a variety of fears or sources of anxiety. Some of these serve a "self-preservation" function; that is, fear and anxiety attached to certain kinds of stimuli (e.g., highways and moving automobiles) motivate the child to avoid these dangers. Moreover, as we noted earlier, fears may serve as a basis for new learning.

But extensive, overly intense, and unduly frequent anxiety reactions (e.g., crying, retreating, withdrawing, cringing, trembling, protesting, appealing for help, cowering, clinging to parents) are incompatible with stable, effective behavior. For subsequent emotional adjustment, many of these responses must be replaced by mature, purposeful reactions to previously fear-eliciting stimuli.

In their extensive study of preschool children's fears, Jersild and Holmes (26) had parents record all the fears displayed by their children and the circumstances involved for a period of 21 days. In this group of normal children, fears of actual objects or unusual stimuli (noises or objects, agents, and events associated with them; sudden unexpected movements, strange objects, situations, and persons) declined with age. On the other hand, fears of imaginary, anticipated, and supernatural dangers (e.g., events associated with the dark, dreams, robbers, imaginary creations, and the possibility of accidents) increased. In general, the frequency and intensity of the overt signs of fear decreased with age (e.g., crying, panic, withdrawal).

Childhood fears are highly unpredictable, and at all age levels children vary greatly in their susceptibility to fear. The same stimulus may be extremely frightening to one child but leave another completely unperturbed. Moreover, a child may be much disturbed by a particular stimulus in one situation, but pay no attention to it in another.

The parents of 30 of the subjects in this study were interviewed between 13 and 35 months after the original records had been made. By this time, more than half of the fears had dropped out, 36 percent persisted in their original form, and 11 percent were of the same class but modified in form (e.g., fear of the noise of a cleaner had generalized to all loud noises). Parents were able to supply examples of new fears growing out of older ones. For example, a child who feared a balloon used in administering the anesthetic during an operation became afraid of all balloons and objects resembling them. Another child, frightened by

a mouse running through his bedroom, began to fear all scratching sounds at night. In brief, fears seem to spread by the process of stimulus generalization.

Intelligence may also influence the acquisition of fear. Among children between the ages of 2 and 5, "fear scores" correlated positively ($r = +.30$) with IQ, the relationship being most marked at the youngest age levels ($r = +.53$ at 24-35 months of age). Apparently more intelligent children were able to recognize "potential danger" more readily than duller ones. Sex differences were also apparent throughout the age range studied, a higher proportion of girls showing fear responses (26, 27, 28).

These studies supply descriptive and normative data about fears characteristic of various age levels. They also make it clear that in the normal course of development, certain kinds of stimuli become less fear-eliciting, while others become more so. With greater maturity, the overt expressions of fear may be expected to become less frequent and intense. Such data may be useful diagnostically, for they provide standards for judging whether a particular child's fear behavior deviates markedly from the norms. Unfortunately, however, they tell us little about antecedent-consequent relationships in the development or modification of emotional behavior patterns. A more detailed discussion of the psychological meaning of fears appears in Chapter 11.

Relationships Between Mothers' and Children's Fears

Since most fears appear to be learned, and since the child's most important learning at this age occurs in the home, it may be hypothesized that many of the young child's fears are acquired primarily from his parents. Some research by Hagman (21) tested this hypothesis. He interviewed the mothers of 40 boys and 30 girls between the ages of 23 and 70 months, asking questions about their own and their children's fears, and their techniques of handling them. The findings indicated a distinct tendency for a child to have the same fears as his mother, the relationship being particularly marked in the cases of fears of dogs, insects, and storms (21).

Through identification with the mother, the child acquires many of her fears. Moreover, if the mother is frightened in certain situations, she is probably unable to do anything to help modify her child's learned fear reactions. Consequently, he continues to view these stimuli as dangerous and to make withdrawal responses. These avoidance responses may be tension-reducing in the sense of removing him from the feared stimulus.

Hence they are reinforced and tend to be repeated, thus preventing the learning of new, more mature reactions. For these reasons, fears which the child shares with his mother are particularly resistant to treatment and extinction.

Techniques of Eliminating Fears

In many cases, children do not automatically "outgrow" their fears. Unless they somehow learn new responses to fear-eliciting stimuli, fears are not eliminated. In the last chapter we discussed some means of reducing fears by pairing previously feared stimuli (such as an animal) with pleasant stimuli (desirable food). After several such pairings the child may begin to have more positive reactions to the object he had feared.

This method of eliminating fears is one of the best examples of the usefulness of learning theory principles for understanding human behavior. For a stimulus-response connection to remain strong, the response must occasionally occur when the stimulus occurs. If the response fails to occur after many presentations of the stimulus, the connection will be weakened and the response may disappear eventually. In the case of learned fears, one of the critical responses we want to eliminate is the reaction of anxiety (which we can view as an internal response) in a particular stimulus situation (e.g., a large dog approaching the child or the ocean waves breaking on the shore).

A second response we want to eliminate is the withdrawal that is elicited by the feeling of anxiety (we can view the anxiety as a stimulus as well as a response) in the feared stimulus context. This withdrawal is rewarding because it removes the child from the unpleasant situation and supports his belief that the withdrawal behavior saved him from great harm. However, if the anxiety-arousing stimuli (i.e., the dog or the ocean waves) were gradually introduced in a situation where the child felt secure, the anxiety reaction might not occur or, if it did, it would be of minimal intensity.

In this manner the connection between the feared external stimulus and the anxiety response would be weakened. Moreover, the withdrawal response would also fail to occur. Eventually, the child would discover himself face-to-face with the previously feared stimulus but the anxiety would not be present because this connection had been weakened or destroyed. The child would have discovered the important fact that there was nothing to fear.

It may be assumed that such techniques would continue to be effective

with children of preschool age. In addition, as the child grows older and better able to use language, it becomes possible to supplement these techniques with verbal explanations.

According to mothers' reports of their attempts to reduce their children's fears, explanation plus subjection (intentionally confronting the child with the situation he fears), and explanation plus gradual subjection both facilitated the reduction of fears. Explanation alone was not found to be a useful method, since the child may not have learned to associate the words with the fear-provoking stimuli. On the other hand, when subjection was accompanied by explanation, the fear-eliciting stimuli became associated with the parent's calming presence, encouragement, and gentle words of explanation. Moreover, in this situation, the child was probably being rewarded for *inhibiting* fear responses. Under these conditions, new, positive (nonfear) responses to the stimuli may become dominant over fear responses in the hierarchy of responses (21).

Of course, in those cases where the child's fears are primarily a reflection of deep-lying psychological disturbances (as in the case of severe phobias) such relatively simple methods will probably not be effective, and psychotherapy may be required. Available data indicate that among 5-year-old girls, for example, a high degree of fearfulness may be symptomatic of generalized anxiety which is also manifested in irritability, mood swings, somberness, and restless sleep (40).

Origins and Treatment of Jealousy

During the preschool period many children face the new, and often unpleasant, experience of having a new baby in the family. The new sibling requires much of the parents' time and care, and the older child is likely to be deprived of some of his accustomed attention. If this is upsetting, he may give evidence of "jealousy."

Jealousy is an emotion resulting both from frustration (i.e., not receiving all the affection the child wants) and from the anxiety that is associated with a dilution of the parents' affection. When we use the word *jealous*, we imply that angry feelings toward the "intruder" are a primary reaction to this frustration.

There is usually nothing abnormal about the young child's jealousy. In most cases, jealousy is "a normal response to actual, supposed, or threatened loss of affection" (58, 66). In some cases, however, the response may be overly severe or persistent and may affect the child's future adjustment adversely.

Jealousy may elicit a variety of reactions, such as aggression toward

the younger infant, regression to infantile behavior (e.g., refusal to eat solid foods; loss of bladder and bowel control), withdrawal from the mother or people generally (indifference or "I don't care" attitude), or repression.

Systematic comparisons of the case histories of 39 children displaying jealousy and 31 who did not have these reactions to their younger siblings have indicated that this characteristic is closely associated with dependence. Apparently, highly dependent children are likely to become severely jealous, since any loss of support is particularly painful to them (53).

Two-thirds of the jealous group were between 18 and 42 months older than the siblings who were the objects of their jealousy. This suggests that they were called upon to share their parents' attention and affection with this sibling at the time their dependency needs were strongest. Since strong drives were being blocked, these children became highly frustrated and, hence, emotionally insecure and upset. Furthermore, a large proportion of the jealous children were first-born children and had young, oversolicitous mothers. Probably these children had learned to expect their parents' unlimited attention and gratification of their dependency needs. Moreover, they may have had little opportunity to develop independence. Consequently, any loss of attention, signifying frustration of dependency drives, was traumatic.

On the other hand, if the new sibling did not arrive until the older child was 4 years old and had achieved some independence, the latter was less likely to manifest jealousy. In this case, the older child may find helping with the baby brings further recognition of his independent, "grown-up" status. As a consequence, feelings of resentment may be allayed.

Informing a child that he is to have a new brother or sister is not enough to prevent negative attitudes toward the new baby. Spending some time each day exclusively with the older child reassures him of the parents' affection and may help to reduce his jealousy. Good interpersonal relations in the home, consistency in discipline, reassuring affection, and continued gratification of the older child's basic needs (including dependency) are probably the most effective means of avoiding or alleviating jealousy (53).

RELATIONSHIPS WITH PEERS

During the first 3 years of life peers do not play an important role in the child's life, and there is very little reciprocal play. From age 3

*John Conger*

FIG. 35. Helping with the new baby. (John Conger.)

on, playmates become increasingly important in the child's experience, but there are wide differences among children in the patterns of their interactions with playmates. The last chapter emphasized the contributions of parental attitudes and general home atmosphere on the development of social attitudes and behavior. As we pointed out there, the basic qualities of the preschool child's contacts with other children are, to a large extent, reflections of his learning in the home. Whatever patterns of behavior have been rewarded frequently there (whether outgoingness or withdrawal, dominance or submission, friendliness or hostility) gain ascendancy in the child's hierarchy of responses. Consequently, they are likely to be used in other social situations.

Into [the] wider community the child carries whatever behavior equipment he has succeeded in developing as a part of his growing personality, in the more intimate and protected home environment. . . . He will have learned

at home some of the essential social techniques used in associating with other persons in group situations, and in behaving himself as one member of a group (9, 40).

This does not mean, however, that the social attitudes, behavior, and techniques of social interaction acquired in the home are fixed and unalterable. In his contacts in new social situations, such as nursery school, the child will undoubtedly find that many of the responses which his parents rewarded also bring rewards from others. Other parentally rewarded responses, however, may prove unacceptable elsewhere and may provoke punishment from teachers or other children. Such responses are likely to become reduced in strength or eliminated, and to be replaced by new responses that are rewarded by the peer group.

Changes in Social Behavior During Preschool Years

While it is usually true that the child's earliest learning occurs in relation to his mother, other family members and friends soon become involved. If the child's mother has fed, comforted, cuddled, caressed, smiled at, and petted him frequently in the presence of others, he will gradually learn to associate gratification with social situations. Such a child is likely to find participation in social groups rewarding, since his early experiences with groups of people were frequently associated with positive feelings generated by the mother's presence. In general, if the youngster has found relationships with his mother gratifying, the positive responses formed in relation to her may become generalized, and he is likely to seek social contacts with others.

In addition, social responses are likely to be reinforced directly from very early childhood. Within the family circle, the child's earliest affectionate, outgoing responses are likely to meet with obvious approval and rewards. This is particularly true in democratic, freedom-giving, and "calm, happy" homes (cf. pp. 296-298), where learning socially oriented responses is greatly encouraged. In such homes, group contacts are viewed as gratifying and desirable, and being a member of a social group acquires reward value early in the child's life.

By nursery school age, some children are socially outgoing and interested in establishing and maintaining relationships with other children. Children who typically seek all their rewards from adults, however, have more difficulty establishing friendships with peers. Those children who consistently seek out adults for comfort and attention are more likely to be rejected by peers than those who are relatively independent of adults (37).

In some cases the child may find social interactions frequently associated with punishment and frustration. For example, a rejecting mother may be so severe in her treatment of her child that he learns to avoid her, and by generalization, to withdraw from social relationships generally, including those with other children. Hence he will experience great difficulties in interactions with his peers.

Under some circumstances, youngsters who have not experienced gratifications in their social contacts with adults may still learn that friendships with other children may be rewarding. This was dramatically illustrated in Freud and Dann's unusual study (16) of six German-Jewish orphans whose parents were killed in the gas chambers during World War II. Although their very early histories differed, all six children arrived at the same concentration camp when they were a few months old, and were always together as a group thereafter. Finally, when they were all between 3 and 4 years old, they were taken to live together in a large country house in England, where they were systematically observed for a year.

Obviously the experiences of these children were unusual. None of them had known any family life and all of them undoubtedly suffered extreme privations during early infancy. Beginning with their arrival at the same concentration camp, however, they experienced most of their satisfactions in each other's presence. The dependence these children had on each other appeared to be similar to the kind of attachment normal children have toward their mothers.

The children's positive feelings were centered exclusively in their own group. It was evident that they cared greatly for each other and not at all for anybody or anything else. They had no other wish than to be together and became upset when they were separated from each other, even for short moments. No child would consent to remain upstairs while the others were downstairs, or vice versa, and no child would be taken for a walk or on an errand without the others. . . . If anything of the kind happened, the single child would constantly ask for the other children while the group would fret for the missing child (16, 131).

The children's unusual emotional dependence on each other was borne out further by the almost complete absence of jealousy, rivalry, and competition, such as normally develop between brothers and sisters or in a group of contemporaries who come from normal families. There was no occasion to urge the children to "take turns"; they did it spontaneously since they were eager that everybody should have his share. Since the adults played no part in their emotional lives at the time, they did not compete with each other for favors or for recognition. They did not tell on each other and they stood up for each other automatically whenever they felt that a member of the group was un-

justly treated or otherwise threatened by an outsider. They were extremely considerate of each other's feelings. They did not grudge each other their possessions, . . . on the contrary lending them to each other with pleasure. When one of them received a present from a shopkeeper, they demanded the same for each of the other children, even in their absence. On walks they were concerned for each other's safety in traffic, looked after children who lagged behind, helped each other over ditches, turned aside branches for each other to clear the passage in the woods, and carried each other's coats. In the nursery they picked up each other's toys. After they had learned to play, they assisted each other silently in building and admired each other's productions. At mealtimes handing food to the neighbor was of greater importance than eating oneself (16, 133).

Most children at first try to apply the social techniques which they have learned at home to their interactions with others, including peers. In contrast, these orphans reacted to the first adult with whom they had intimate contact as they had learned to react to their peers.

The children's first positive approaches to the adults were made on the basis of their group feelings and differed in quality from the usual demanding, possessive behavior which young children show toward their mothers or mother substitutes. The children began to insist that the members of the staff should have their turn or share; they became sensitive to their feelings, identified with their needs, and considerate of their comfort. They wanted to help the adults with their occupations, and in return, expected to be helped by them. They disliked it when any member of the staff was absent and wanted to know where the adults had been and what they had done during their absence. In short, they ceased to regard the adults as outsiders, included them in their group and, as the examples show, began to treat them in some ways as they treated each other (16, 142).

During the year's observation, the children never formed as close or strong ties with adults as they had with each other. It appears that the reward value of the children continued to be higher than that of adults. In the author's words, "their companions of the same age were their real love objects. . . . This explains why the feelings of the six children toward each other show a warmth and spontaneity which is unheard of in ordinary relations between young contemporaries" (16, 166).

Increased Social Participation

The preschool child's physical and intellectual maturation provides the bases for more prolonged and complicated social interactions than he had when he was younger. However, the nature and extent of the child's social participation will be significantly influenced by his previous experience with rewards and punishments for social responses. The findings



Solitary play.



Parallel play.



Cooperative play.

FIG. 36. (Photos courtesy of Los Angeles City Board of Education.)

of several studies of social development in children are consistent with this hypothesis.

It will be recalled that social responsiveness increases between the ages of 6 and 25 months (43; cf. pp. 159-161). A study by Parten (50) demonstrates that further increments in social orientation occur throughout the preschool period. She made records of 20 one-minute observations of 42 nursery school children between the ages of 2 and 5. Social participation during each sample was classified and scored according to six categories: unoccupied behavior (-3), solitary play (-2), onlooker behavior (watches, but does not enter play) (-1), parallel play (plays alongside, but not with, other children using the same playthings) (+1), associated play (plays with others and shares materials) (+2), cooperative or organized play (+3). A composite social participation score was computed for each child by summing the scores he obtained during all observation periods.

Only a small number of these children indulged in unoccupied behavior. Parallel play, the most rudimentary form of social behavior, was much more characteristic of younger than of older children. The latter, on the other hand, participated more frequently in associated or cooperative play. Composite social participation scores were highly correlated with chronological age ($r = +.61$). This indicates that as they grow older, children generally spend more time in social interactions of an associated or cooperative sort and less time without activity, alone, or merely observing.

These changes in social behavior may be partially attributable to increased ability to get around and to participate in more complex, cooperative activities. In addition to this, however, the older child probably has had more experiences in which outgoing social responses have been rewarded. Attendance at nursery school and playgrounds gives him more opportunities to learn that group-centered behavior can bring gratifications. As a consequence of many experiences, socially oriented responses become stronger and the child is likely to engage in more group activities.

As social interactions become more frequent, they also become more complex. Between the ages of 2 and 5, the child forms his first friendships. This period is also marked by increments in many—often apparently opposite—types of interpersonal behaviors. For example, children may become not only more aggressive, "bossy," and competitive; but also more cooperative, friendly, and sympathetic (30, 49). In short, many aspects of social behavior change simultaneously.

Desire for Peer Affiliations: Friendships

As they become generally more socially oriented, children are likely to become particularly closely attached to a few peers. In one study of the factors influencing the formation of friendships among preschool children, 33 boys and girls were observed during their free-play periods (10). Friendship indices were derived on the basis of the number of times children were members of the same play group. Teachers rated each of the subjects on sociality, physical activity, extroversion, attractiveness of personality, and frequency of laughter.

The findings indicated that children of preschool age formed friendships with members of their own sex much more frequently than with members of the opposite sex. Similarities in chronological age, sociality, and physical activity influenced friendships among boys. Girls who became friends were alike in social participation, chronological age, sociality, and physical activity. Resemblances in height, extroversion, attractiveness of personality, intelligence, and frequency of laughter did not appear to influence either boys' or girls' friendships.

These mutual attractions may be interpreted in terms of the rewards stemming from these associations. For example, at this age, association with—and copying the behavior of—individuals of the child's own sex are generally rewarded. Moreover, boys have to some extent developed masculine needs and interests, while girls have developed feminine ones. Like-sexed peers, having common needs and interests, are more likely to find each other's company satisfying.

Another investigator (18, 19) made records of all instances of preschool children playing and quarreling with each other during 40 half-minute observation periods. From these data, friendship indices, quarrelsomeness indices, and quarrelsomeness-friendships ratios (frequency of quarrels divided by frequency of playing together) were derived.

The data clearly support the hypothesis that friendship patterns change with age. For example, the average friendship index increased regularly with age. Between the ages of 2 and 3, there was generally an expansion in the number of playmates a child had. After this age, the primary increase was in strength of friendship for a few particular children, rather than in total number of friends (19). This shift in friendship patterns may be viewed as a consequence of the child's learning in these new interpersonal situations. In his first experiences outside the home, the child may interact with many different children. Some of these early relationships do not bring rewards and may even bring punishment. With time,

the child learns that relationships with certain children are more likely to be gratifying than others. Hence he forms closer attachments to these children. Moreover, the quarrelsomeness-friendship ratio decreases regularly with age, indicating that, with more social experience, children find that outgoing, friendly responses are more frequently associated with reward than hostile ones.

Competition

In our competition-oriented culture, excelling others and striving for higher status are frequently and consistently rewarded at home and in school. Hence, as the child becomes increasingly socialized, as he identifies more strongly with his parents and others in his society, he adopts the socially approved competitive values. Many of the conflicts which occur during the preschool years may be related to the growth of competitive responses.

Greenberg (20) studied the development of competitive responses (those indicating a "desire to excel, an impulse to do better than . . . rivals") in Viennese children between the ages of 2 and 7. The subjects were brought into a room in pairs and seated opposite each other at a table on which there was a pile of blocks. At first they were permitted to play or build freely. Later the investigator challenged them to compete by giving instructions to build something "prettier" and something "bigger" than their companion.

Figure 37, taken from Greenberg's data, shows the increase which occurs with age in the percentage of children exhibiting competitive responses (e.g., grabbing, competitive remarks). Two-year-olds did not compete and made only "undirected, nonspecific" movements toward the materials. Competitive responses began between the ages of 3 and 4, when the children became more aware of the material, and more significantly, of the social relationships with their companions. Competition became much more intense between the ages of 4 and 6, when grabbing materials from the other child, disregarding his feelings, and making self-flattering remarks increased, and giving materials or help to the companion decreased (20).

In another study, 32 American children were observed putting pegs into a pegboard—first working individually and later paired with another child while performing this same task. The 2-year-olds seemed to be primarily interested in the play material, and their behavior was unaffected by the presence of others. Three- and 4-year-olds exhibited a variety of responses, including rivalry, when they were with compan-

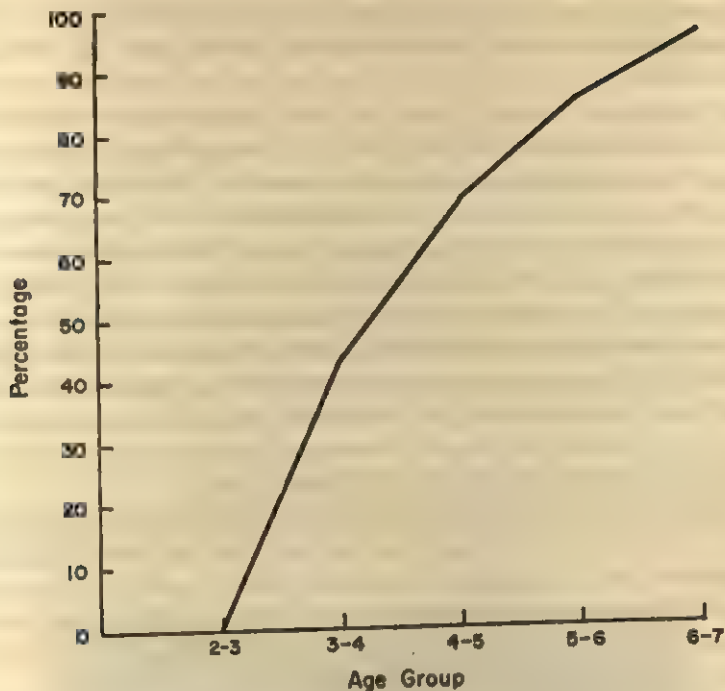


FIG. 37. Percentage of children showing competitive responses at various ages. (After P. J. Greenberg, *Competition in children: an experimental study. Amer. J. Psychol.*, 1932, 44, 221-249.)

ions, but in general, their work performance decreased. Among 4-to 6-year-olds, on the other hand, the desire to excel the companion was strong and seemed to be dominant, so that performance improved under competitive conditions (35).

FACTORS RELATED TO COMPETITIVENESS. There are, of course, wide individual variations in competitiveness among children within our own culture. Some youngsters are highly and violently competitive; others are only mildly and calmly so; while still others do not seem to be competitive at all (20). We have already seen some of the familial background factors involved in competition. Nursery school children from democratic, freedom-giving homes tended to be both more outgoing and more rivalrous than those from authoritarian homes (4, 5). Children who got along well with their siblings were less rivalrous than others.

The findings of another recent study of competition in nursery school children suggest that sex and socioeconomic status are related to compe-

tition among youngsters of this age (44). In this study, 112 3- and 4-year-old nursery school children—equally divided as to age, sex, and lower-middle or upper-middle (largely professional families) socioeconomic backgrounds—were brought in pairs to a playroom where there were two piles of toy construction blocks. All competitive and aggressive responses, including verbalizations, were recorded. These data, like those of the studies reviewed above, revealed that there were more instances of competition among older than among younger children. Moreover, the children from the lower-middle class competed more than those from the upper-middle group, and boys competed more than girls. It may be inferred that the lower-middle-class children had been rewarded by their parents for competition, while the upper-middle parents of this group discouraged competition in play. Apparently, masculine sex-typing, even at this age, includes learning to be more highly competitive, while feminine sex-typing does not include this characteristic.

In this study, competition and aggression were not closely related ($r = +.22$), i.e., highly competitive children were not necessarily highly aggressive (44). Apparently, at this age, these characteristics develop relatively independently, although among older children and adults they may be closely associated. In fact, among older individuals, competition may be one way of expressing aggression.

The role of cultural rewards in the development of rivalry may be clarified by comparing Americans' attitudes with those of individuals from societies in which competition is discouraged. For the American,

... self-esteem has become conditioned to excelling. Excelling is a secondary (learned) drive in his personality. On the other hand, in the village of the Zuni, the ideal man "sees his activities in those of the group" and avoids both leadership as well as the competitive execution of tasks. Asch has several times been quoted as observing Hopi children to consistently belittle their own work. . . . Apparently the Zuni and Hopi modal personality lacks an acquired motivation of competitiveness (23, 190).

Despite its general approval in our society, an overemphasis on competition may be damaging to the child and to those with whom he associates. For example, competition may be unhealthy "if the child's own estimate of himself and of his worth is tied to the extent to which he can outdo others. It is unhealthy if the child has a tendency to regard himself as contemptible and inferior unless he can prove his superiority to all comers" (25, 226).

The individual with overly strong competitive drives may be bitter, vengeful, or callous in his relationships with others. In brief, while a

certain amount of competitive striving may be necessary for accomplishment, an overemphasis on competition may have adverse consequences.

Prejudice Among Preschoolers

As early as 3 years of age, some children show an awareness of the physical differences between Negro and white children and display negative reactions to Negro children (56). In one rather intensive study of an interracial nursery school in the South, five Negro and five white children ($2\frac{1}{2}$ to $3\frac{1}{2}$ years of age) were observed for a total of over 15 hours. Most of the children manifested an awareness of the physical differences between the two groups. One of the recorded behavioral sequences among the children reveals the early beginnings of prejudicial attitudes in preschoolers.

Lyle (white) and Dan (Negro) were in the bathroom washing their hands. Without immediate provocation, Lyle looked up at Dan and said, "I don't like black and you're black. I don't like your hair or your nose and I won't play with you."



FIG. 38. The training situation employed in Chittenden's (11) study of the modification of assertive behavior. (With permission of the Society for Research in Child Development.)

Later in the period

Lyle and Dan were lying next to each other during rest period. Lyle says, "I don't like black and brown." He repeated this, "I don't like black and brown." Dan says, "I like _____." Lyle: "I don't like your face, I don't like your nose" (56, 60).

One of the Negro children, Hugh, reacted negatively to the other Negro children and usually sought out the white children for play. At one point he got into a conflict with Dan (the Negro). When Dan held onto a blanket, Hugh yelled loudly,

"You _____, you nigger." Hugh is said, by his mother, to use this term toward his father when angry (56, 65).

In another study, 125 white and 100 Negro children, ages 3 to 17, were required to "tell the difference" between pictures of Negroes and whites and to specify preferred playmates (55). The ability to differentiate between whites and Negroes was found to increase rapidly with age. Moreover, Negro children, in comparison to whites, showed a greater tendency to avoid selecting other Negro children as playmates and assigned negative characteristics to Negroes. This behavior indicates the presence of an anxiety-arousing identification in young Negro children. It appears that, even prior to school entrance, some children have already developed rather strong racial attitudes.

NURSERY SCHOOL AND SOCIAL BEHAVIOR

The objectives of the nursery school have been stated in various ways. Some writers (2) consider an increase in "general security" to be the basic goal. Others maintain that nursery school is "a social situation that will constitute a real learning situation resulting in learning to adjust and conform to others as well as maintaining [one's] own freedom as an individual in a group" (30). Furthermore, "successful adjustment to the social situation may be considered one of the tool subjects in nursery school" (30). Most workers in the field agree that the basic aims of the nursery school include the promotion of personal adjustment and improvement of social relations. In many cases, the nursery school affords the child his first contact with groups of peers, and thus marks the beginning of peer influences.

Some of the responses learned at home are likely to be reinforced further in nursery school and hence to acquire greater habit strength. Other responses are likely to be punished by peers or nursery school teachers and hence to lose habit strength. It might therefore be anticipated that the child's behavior will change somewhat as a consequence of nursery school experience.

There have been a number of studies attempting to evaluate either the immediate or long-time consequents of nursery school attendance, and we shall review some of the major ones presently. A word of caution in interpreting the studies seems appropriate at the outset, however. Many of the studies compare children who attend nursery school with those who do not. In general the groups are matched with respect to a number of important variables such as age, intelligence, and socioeconomic status. But there are probably other important factors, such as parental attitudes, on which the two groups cannot be matched. These factors may be intimately related to whether or not the child goes to nursery school at all. Therefore, observed differences between children attending and those not attending nursery school may not be attributable so much to the variable of attendance as to differences in the family backgrounds.

In one of the earliest studies of the problem, 22 nursery school children were compared with 21 youngsters matched in age, intelligence, physical development, and socioeconomic background, who did not attend nursery school. All were rated on a series of behavior items at the beginning of the school year and again six months later (59).

It was found that during the intervening period, the nursery school children became less inhibited, more spontaneous, and more socialized. They gained more than the other children in initiative, independence, self-assertion, self-reliance, curiosity, and interest in the environment. According to the investigator, these changes are "probably due to the influence of the social force of a large group of children who had to adjust to each other constantly" (59, 72).

In another study, systematic observations of the social behavior of 18 3-year-old nursery school children were made in the fall and again in the spring (30). Nine of the children had attended the same school during the previous year and knew each other, while the other nine were new pupils. The investigators used a time-sampling technique, recording all the child's verbalizations and social activities. Each child was assigned a social participation score based on the time spent in cooperative play, sharing, and conversation.

During the fall observations, the children who had previously attended nursery school were more sociable than the others, spending a significantly greater proportion of their time in social activities. However, most of their social relationships were confined to children with whom they had been friendly during the preceding year.

The new children made rapid gains in social participation. As early as the latter part of the fall, they made 80 percent as many interpersonal

contacts as the "older" group, and by the end of the school year, they were equal in social activity. Apparently these children discovered quickly that their peers could provide important gratifications and that social relationships could be rewarding. Moreover, the program in the nursery school probably included many group activities which were satisfying to all the children. It appears that the nursery school can be a social setting in which the child can learn to associate social participation with satisfactions and rewards. In this way, attendance may promote sociability and increase the child's interest in others.

Socialization of Undesirable Responses

Several studies (22, 21, 32) suggest that specific behavior patterns may also change as a consequence of preschool experience. Observations and mothers' reports indicate that children attending nursery school eliminated more "undesirable" infantile, and dependent habits during the year than a matched group of peers who did not go to preschool. Correlatively, they acquired a greater number of "desirable" habits, many of them indicative of emancipation from adults (32).

In a more extensive study, two matched groups of 106 children, one with an average of nine months attendance in nursery school, and a control group enrolled only a few weeks, served as subjects (22). Teachers rated each subject on 60 kinds of behavior involving routine habits, social adjustments, speech, nervous tendencies, and fears. Those who had attended nursery school longer showed fewer maladaptive reactions such as avoiding strangers, shrinking from notice, giving in easily, twisting their hair, tenseness, playing with fingers, wriggling, refusing food, enuresis, leaving tasks incomplete, and dawdling with food. Nursery school experience seems to facilitate social adjustment and the development of improved routine habits, at the same time reducing social inhibitions and nervous tendencies.

Preschool training did not affect manifestations of such "emotional" behaviors as: cries easily, fears animals, twitches, sulks, temper tantrums, thumbsucking. This led the author to conclude that "the influence of nursery school may be greater for social behavior and routine adjustments than for emotional traits *per se*" (22, 188).

One study failed to demonstrate that children benefit from nursery school training (2). The investigators were concerned with the relationships between length of nursery school attendance and ratings on ten types of "insecurity" behavior (e.g., temper tantrums, nervous habits, physical inactivity, withdrawal into fantasy, oversensitivity to criticism).

Total scores, based on all the ratings, were not significantly related to duration of nursery school experience, although increased physical activity and resistance to authority were somewhat associated with longer periods of attendance. In general, the findings were inconclusive, providing little evidence that children's insecurity feelings were influenced by preschool experience (2).

Except for this last, these studies are consistent in suggesting that youngsters benefit from nursery school attendance. The outstanding consequents seem to be advances in sociability, self-expression, independence, initiative, social adaptability, and interest in the environment. As we pointed out earlier, it is not always possible, in these studies on changes in behavior, to separate the influences of home atmosphere from the influences of nursery school attendance itself. Nevertheless, it seems reasonable to conclude that nursery school attendance itself may play an important part in strengthening such responses as social outgoingness, independence, and self-expression, for these are the responses which are highly rewarded in many such schools.

Influences of Different Nursery School Atmospheres

It should be pointed out that the nursery schools involved in the above studies very likely constituted a select sample of well-conducted schools with professionally trained personnel. Unfortunately, not all nursery schools are of this level. A well-designed experimental study shows how the impact of nursery school attendance on the child's personality and social adjustment varies with the general atmosphere, teaching techniques, and programs of the school (57). The investigator studied two groups of 4-year-olds—equated in IQ, socioeconomic status, and general personality characteristics (judged by teachers)—who had different kinds of nursery school experiences. With one group of 12 subjects, the teachers were understanding and interested but somewhat detached, allowing the children to plan their own activities and assisting them only when they specifically requested help. With the other group, 11 subjects, these same teachers were warm, friendly, and cooperative, maintaining a great deal of personal contact with the children, guiding their activities, and spontaneously giving help and information.

After eight months of nursery school experience, the children who had a great deal of teacher guidance improved more in personal and social adjustment, became more dominant, and participated more actively in social relationships than the others. They were also less hostile, rejecting, persecuting, threatening, attacking, and destructive. Frequent warm,

friendly interactions with teachers also fostered more leadership, greater constructiveness when faced with possible failure, and a lower incidence of nervous habits. In short, from the points of view of the preschool child's social and emotional adjustment, active teacher guidance and participation are more beneficial than detachment. The favorable changes in children's behavior following nursery school training, noted in the studies cited above, may be attributable to the "high teacher guidance, active participation" qualities of the schools they attended.

PSYCHOTHERAPY

While special training and nursery school experience may modify certain personality and social characteristics, serious emotional problems may be more resistant to change. Since maladjustments are generally the consequences of complex, disturbed family relationships, they often require special psychological treatment (psychotherapy) for their alleviation or elimination.

There are many different "schools" of psychotherapy, each of them making use of its own specific procedures and techniques. However, the most important aspect of all psychotherapy, shared by all "schools," is the establishment of a close relationship between the patient and a highly trained therapist (psychiatrist, clinical psychologist, social worker).

Psychotherapy is basically a learning process. Regardless of the specific techniques involved, all psychotherapeutic situations provide opportunities for learning new adaptive attitudes and behavior which may replace older, less adequate responses learned in the family setting.

If neurotic behavior is learned, it should be unlearned by some combination of the same principles by which it was taught. We believe this to be the case. Psychotherapy establishes a set of conditions by which neurotic habits may be unlearned and non-neurotic habits learned. Therefore, we view the therapist as a kind of teacher and the patient as a learner (13, 7).

Techniques of Therapy: Nondirective Approaches

Most child therapists use play as a therapeutic device, although, as we shall see, they use it in markedly different ways. Speaking of the rationale underlying the use of play, Axline, a leading authority in the field, says: "Play therapy is based upon the fact that play is the child's natural medium of self-expression. It is an opportunity which is given to the child to 'play out' his feelings and problems, just as in certain types of adult therapy, an individual 'talks out' his difficulties" (3, 9).

She classifies play therapy techniques into two broad categories, directive, in which "the therapist may assume responsibility for guidance and interpretation" and nondirective, in which "the therapist may leave responsibility and direction to the child." In nondirective play therapy, the child is allowed to do or say anything he wants in the playroom. Throughout the sessions, the therapist is friendly and interested but gives no direct suggestions. He remains alert to what the child is expressing in play and conversation and indicates his acceptance and understanding of his behavior. In this way "the child is given the opportunity to play out his accumulated feelings of tensions, frustration, insecurity, aggression, fear, bewilderment and confusion" (3, 16).

By playing out these feelings he brings them to the surface, gets them out in the open, faces them, learns to control them, or abandons them. When he has achieved emotional relaxation, he begins to realize the power within himself to be an individual in his own right, to think for himself, to make his own decisions, to become psychologically more mature, and, by so doing, to realize selfhood.

The play-therapy room is good growing ground. In the security of this room where the *child* is the most important person, where he is in command of the situation and of himself, where no one tells him what to do, no one criticizes what he does, no one nags, or suggests, or goads him on or pries into his private world, he suddenly feels that here he can unfold his wings; he can look squarely at himself, for he is accepted completely; he can test out his ideas; he can express himself fully; for this is *his* world, and he no longer has to compete with such other forces as adult authority or rival contemporaries or situations where he is a human pawn in a game between bickering parents, or where he is the butt of someone else's frustrations and aggressions. He is an individual in his own right. He is treated with dignity and respect. He can say anything that he feels like saying—and he is accepted completely. He can play with the toys in any way that he likes to—and he is accepted completely. He can hate and he can love and he can be as indifferent as the Great Stone Face—and he is still accepted completely. He can be as fast as a whirlwind or as slow as molasses in January—and he is neither restrained nor hurried.

It is a unique experience for a child suddenly to find adult suggestions, mandates, rebukes, restraints, criticisms, disapprovals, support, intrusions gone. They are all replaced by complete acceptance and permissiveness to be himself (3, 16).

As a consequence of this therapy, "the child gains the courage to move ahead, to become a more mature and independent individual" (3, 21).

Allen (1), a prominent child psychiatrist, is also nondirective in his techniques. Although he uses free and spontaneous play he involves the child in more discussion than Axline does. During treatment sessions, the emphasis is on the immediate situation, the child's present activities,

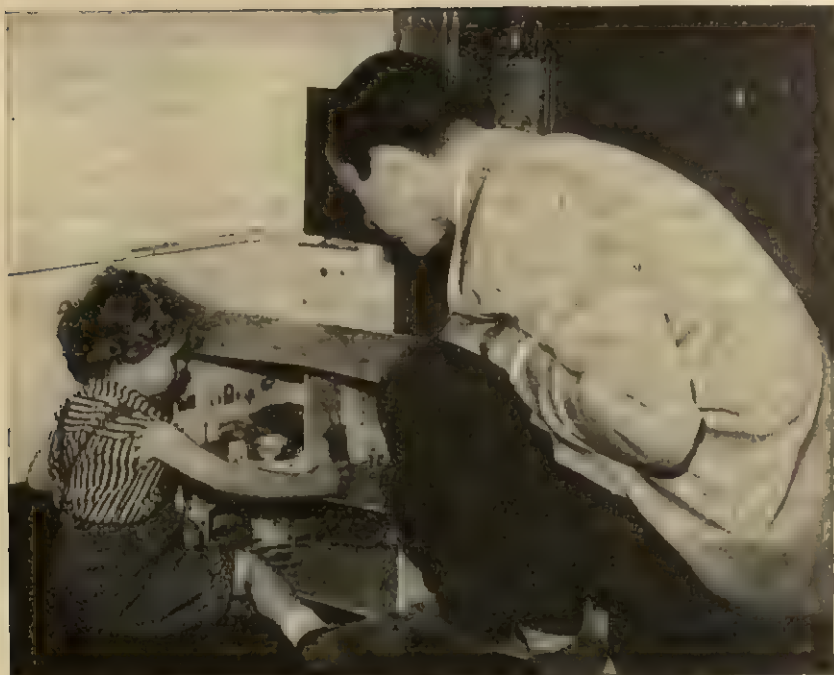


FIG. 39. A play therapy session. (Posed picture, courtesy of Harold E. Burt, Ohio State University.)

statements, feelings, and emotions, rather than on past circumstances and events which have influenced his behavior. Difficulties and problems which arise during play are discussed in terms of what is happening at the moment. The sessions are regarded as "growth experiences," giving the child the opportunity to experience a unique emotional relationship in which he is completely accepted. Hence he may try new solutions to problems and learn to deal adequately with previously upsetting situations (1).

According to some therapists, spontaneous play techniques are particularly indicated with children whose neurotic traits are of long standing. They maintain that youngsters who are inhibited, repressed, extremely hostile, excessively timid, or overly meticulous are most likely to benefit from this kind of treatment (1, 50).

Directive Play Therapy

PSYCHOANALYTIC TECHNIQUES. The use of play as a therapeutic device originated in early attempts to apply psychoanalytic techniques to chil-

dren. In psychoanalytic therapy with adults, free association and dream interpretation are among the principal techniques employed to uncover the patient's basic conflicts and sources of emotional maladjustment. Since these methods require a high degree of verbal facility and comprehension on the part of the patient, they have limited value for the treatment of children.

Anna Freud, the daughter of Sigmund Freud, was one of the first to recognize the therapeutic potential of play as a partial substitute for more verbal treatment methods (15). In her efforts to understand the child and his conflicts, she uses systematic observation of play, combined whenever possible with reports of dreams and daydreams, free associations, and direct discussion. While she may guide the child's play into certain areas of conflict, she seldom gives psychoanalytic interpretations. On these rare occasions, they are related to the child's personal experiences (15)

CONTROLLED TECHNIQUES. Other play therapy techniques, at least partially derived from psychoanalytic theory and procedures, make use of "control" or standardized situations. In these approaches, "the therapist may select the material (dolls and other play material) and depict the plot, as in the sibling rivalry situation. The therapist supplies the main characters and the dramatic situation. The child is encouraged to work with the plot selected, add whatever other actors or scenes he wishes, and keep the play going" (36, 918).

David Levy, the leading exponent of this general approach, calls his technique *release therapy*. It is intended to relieve severe anxiety, fear reactions, or night terrors which have been precipitated by traumatic experiences, such as a surgical operation, accident, or divorce of the parents. He suggests that the use of the technique should be limited to children under 10, relatively new problems, and cases having "a definite symptom picture, precipitated by a specific event in the form of a frightening experience." Moreover,

... it is important that the child is suffering from something that happened in the past and not from a difficult situation going on at the time of treatment. Release therapy cannot be applied, for example, to a child suffering from the results of maternal rejection or overprotection. In such cases the mother and not the child is the primary or even the exclusive object of therapy (36, 916).

The following case illustrates the way in which release therapy may be used.

A boy aged 4 years, 1 month, the older of two children, was referred because of night terrors, timidity with children, negativism, and sibling rivalry. The symptoms were all of three weeks' duration (except sibling rivalry and were

precipitated by a fight with a companion in which the patient was licked. Night terrors had occurred a year previously and for one month following the birth of the younger sibling, a girl.

Patient was to leave for the country at the end of the week. There were daily sessions for six days, comprising sibling rivalry situations in which there was quick release of primitive hostility against mother, baby, and breasts. Anxiety of falling into the toilet and crushing a baby doll that fell in, occurred in the fourth interview.

Night terrors stopped after the second session. Follow-up interviews, 9 months, 22 months, and 4 years 5 months after treatment stopped, revealed a marked change in the sibling rivalry, first noted during treatment; a change from a jealous, hostile relationship to a protecting, friendly one. At school he became well adjusted, frequently exchanging home visits with children and showed good social initiative. School work was always superior. Negativism in the form of sulky disobedience and refusals were noted as modified in the first follow-up to amiable, reasonable attitude, which continued. Night terrors recurred for a period of about 5 weeks, three years after treatment, following a change of governesses and measles with delirium and high fever the first three days. They occurred nightly the first two weeks and gradually decreased in intensity and frequency (36, 922).

In Solomon's *active play therapy* (54), another controlled method, the child's play is limited to situations the therapist creates for him, although his interests are stimulated by statements such as "let's pretend" and "let's make up a game." It is assumed that the patient who describes the dolls as angry, sad, or happy in certain settings, reacts this way himself in real life situations. Throughout the sessions the therapist asks the child questions about his feelings and emotions. For example, if the child states that "the boy (doll) gets mad," the therapist would ask what makes him get mad and how he reacts when he is mad. According to Solomon, the child reaches an understanding of himself and his underlying problems and conflicts during the treatment sessions. He begins to have less fear of his hostility and guilt because he has been allowed to express them in permissive, nonthreatening situations. Direct suggestions and help in solving problems are also used (e.g., "you don't have to feel badly about that"). As a consequence of all these factors, the child benefits from therapy.

The technique has been reported to be particularly effective with four categories of problems: aggressive-impulsive, anxiety-phobic (basically frightened, fearful children), regressive reaction (return to infantile behavior, wetting, thumbsucking, etc.) and schizoid-schizophrenic (withdrawn children who are more concerned with their fantasy life than with reality). Solomon does not claim that this technique is more successful

than other methods, but feels that it may achieve important results in a shorter period of time (54).

These are only a few of the many kinds of play techniques employed in child therapy. Despite the wide differences among these approaches, adherents of every method report therapeutic successes.

Psychotherapy and Learning

As we pointed out earlier, therapy sessions provide learning settings in which the child may acquire new attitudes and feelings toward himself and others, as well as new overt responses. Patient-therapist relationships are social situations involving personal interactions which may be different from any the child has previously experienced. It may be the first prolonged contact with a person who does not restrain him or force him to do anything, but allows—even encourages—him to express himself completely spontaneously. Continued therapy means repeated experiences with rewarding social relationships. Personal interactions become associated with satisfaction and security rather than with upset feelings. The child may acquire new attitudes toward others and toward social relations, and these may generalize to everyday situations. Thus the initially shy, withdrawn child may develop more outgoing and sociable responses.

Inhibited, overly sensitive, and fearful children may also change following therapy. In their homes, they may have been punished for independent activities, and for self-expression, expression of hostility, and curiosity. Hence they may inhibit any responses not specifically approved by their parents.

The therapist, on the other hand, is tolerant of all kinds of behavior and the child—perhaps for the first time in his life—finds that he need not be afraid of expressing his own feelings. This promotes feelings of freedom and self-confidence, and concomitantly, reduces social fears and inhibition.

Specific fears and anxieties may also be eliminated through psychotherapy, especially using such techniques as those advocated by Levy and Solomon. In the therapy sessions, the child is confronted repeatedly with play situations resembling real settings which elicit fear responses. However, here he is in the presence of an individual with whom he feels secure, and the environment is protected and unthreatening. Although fear responses are not punished, more adequate reactions bring rewards from the therapist. During treatment, the child may try out new responses and those which are “good” and more mature will be reinforced

by the therapist, and consequently will acquire greater habit strength. Subsequently, the newly formed, more adaptive reactions may become generalized to more important real-life situations.

One child psychiatrist, a practitioner of controlled play therapy, calls the play interview "a test situation" in which the child "not only learns what he has contributed to the total situation [i.e., his problems] but for the first time finds himself secure in a personal relationship. He can therefore begin to develop the courage that comes from self-criticism, a sense of freedom arising out of self-expression, and be helped in the direction of happy, healthy living (12, 286).

Psychotherapy with Parents

By and large, the therapist's efforts can be successful only if the child lives in a home atmosphere which is favorable for maintaining the behavior changes achieved in the therapy sessions. Gains made in therapy can become general only if they are reinforced by other important individuals in the child's life. Parents supply most of the child's rewards and punishments. If adaptive responses, rewarded in therapy, are punished at home, they may be eliminated. Conversely, if maladaptive responses continue to be rewarded at home, they will not become reduced in spite of the therapist's efforts to alleviate them.

Almost all child therapists recognize this and agree that the fullest cooperation from the parents is essential if the child is to benefit from therapy. In many cases, the parents are also advised to have therapy while their child is being treated. When the therapist is consulted about a child's emotional problems, he must first direct his attention

... to the personalities of the parents and to ways and means with which he may improve their personalities. If their emotional problems are deeply ingrained and represent established neuroses or even psychoses it may then be necessary to spend a considerable period of time and effort in helping them. At times, however, parents have strayed from a proper role because of ignorance or mild emotional problems which are amenable to short-term psychotherapy easily carried out by a general practitioner or pediatrician. Obvious defects in the parental attitude may sometimes be removed by a few discussions. The overdemanding mother who has ritualized home routines may be sufficiently flexible to accept the physician's advice in the direction of more leniency. The father who spends little time with his children, feeling that his role in the family as far as they are concerned is unimportant, may be stimulated to greater activity by a physician's well-chosen comments (14, 137).

Removal from the Home

In some cases, the parents are so uncooperative or incapable of change that their interactions with the child actually counteract the therapist's

efforts. If, under these circumstances, the child's maladjustment is severe enough, he may be taken away from his own family and placed in a foster home or institution. However,

Removing children from their homes and placing them in an institution is generally considered one of the most drastic forms of treatment, one to be avoided whenever there are possible alternatives. In our society with its strong emphasis on the family unit and the traditional stigma of the kinds of institutions we have for children, this mode of dealing with children may possibly be more negative in its effects than in other societies. The fact remains, however, that in our society in most instances institutionalization creates more problems than it may solve for the child (52, 401).

There are no definite criteria to be applied in making decisions about institutionalization or foster home placement. Certainly all the factors in the child's life situation must be taken into account. However, most child therapists agree that this type of treatment is unadvisable "if there is a good chance of changing destructive family attitudes" (51, 168).

According to Rotter, "the most general rule is not to institutionalize except as a last resort or when all other avenues of treatment are blocked." Exceptions might be made in cases "where the institution is quite advanced in its treatment program and when the institutionalization itself is thought of as a temporary treatment measure rather than a technique of taking the child out of circulation" (52, 403).

Case Material. Peter B

The early signs of dependency on his mother, conformity to adults, and fearfulness of the environment, already present in Peter at age 2, became much stronger during the preschool period. By the time Peter was ready to begin school he was a meek and mild boy eager to please his teacher and afraid of the bustling and energetic activity of other school-age boys. Let us trace Peter's development in relation to the processes discussed in the previous two chapters.

SEX-TYPING. Both of Peter's parents fostered his timidity, his interest in sedentary activities, and his avoidance of the rough play of preschool boys. They were not bothered by his corresponding passivity and fear and made no attempt to punish these behaviors. If Peter cried when a boy grabbed his toy, his mother felt sorry for him. If Peter decided to lie down in the middle of an activity, his mother usually approved and remarked, "What a good boy he is." During sunny afternoons, Peter frequently stayed indoors leafing through magazines or listening to music, and Mrs. B generally encouraged his quiet, intellectual interests.

Peter was not adopting traditional boyish interests. He preferred books

to wrestling, withdrawal to retaliation, and girls rather than boys as playmates. These tendencies were accepted by both his mother and father, and they increased in strength as he grew older.

Peter's passivity was partially related to his identification with his father. Mr. B was, himself, quiet and retiring, and the masculine role-model he presented to his son was congruent with the behavior he encouraged.

At the same time, Peter was also adopting many of his mother's characteristics. Mrs. B believed in neatness, compulsive adherence to routine, and the avoidance of aggression. Peter's desire to please his mother and his partial identification with her resulted in the adoption of many of her attitudes and behaviors. By age 4, Peter was the most compulsive boy in the entire population studied at the Fels Institute. He regularly put his toys away neatly; he never failed to wash his hands when they were dirty; and he became upset if a standard routine was altered in any way. On one occasion, the man who regularly mowed the lawn left the mower out in the rain; this was the first time the mower had not been returned to the garage. Peter became agitated and cried hysterically until someone brought the mower inside—something that was "routine" in Peter's experience.

SUPEREGO DEVELOPMENT. By age 5, Peter had developed a precociously strict superego. He cried bitterly when he was punished and ran to his mother to be kissed and pardoned after violating some rule. He acceded to all of the major demands that were made of him. To get Peter to obey required only a sharp, "PETER—stop that."

PATTERNS OF MATERNAL REWARD AND PUNISHMENT. Peter's mother was relatively consistent in the administration of rewards and punishments. She characteristically rewarded dependent overtures toward her and punished independence and autonomous action. If Peter wished to walk next door to a friend's house, he had to ask permission to do so.

It is not surprising that Peter was excessively dependent. He characteristically solicited help in problem situations, whether it was getting on or off a bicycle or putting on his pajamas. Frequently he would climb on a living-room chair and, finding it difficult to get down, cry for someone to help him out of this precarious position. Any semblance of physical or verbal aggression was immediately punished, and Peter rarely expressed aggression to parents or playmates. If another child attacked him, Peter would cry or scream, but rarely defended himself.

During these years, Mrs. B was extremely restrictive, screening Peter's playmates and selecting his activities with great care. This restrictiveness

strengthened the fear and timidity Peter had already shown at age 2. By 5 years of age, he was afraid to go on slides, afraid to fight, afraid to climb to high places, and afraid to ride a bike too rapidly, for fear that he might hurt himself. He was clumsy and poorly coordinated—all of which led to rejection by other boys who enjoyed gross motor activity and saw Peter as a "sissy." Peer rejection, in turn, made Peter even more fearful of engaging in social interaction with other boys.

Peter's speech was still retarded at 5 years of age, largely because his mother continued to reward his infantile speech patterns. He lisped and many of his phrases were infantile in structure. For example, he said, "thore" rather than "store" or "me go home" rather than "I will go home." Rather than ignore or discourage these expressions, Mrs. B actually rewarded them by speaking to Peter in his own infantile way.

Verbatim reports of his behavior at the Fels nursery school vividly described Peter at 3½ years of age.

Babyish in appearance—a big, baby stare, long, curly eyelashes, and a rosebud mouth. He showed extreme caution and would back away from any situation that smacked of danger. When threatened he would shake his head, clasp his hands, and beg in a frantic tone, "No—no—no." His role with peers was a sedentary, passive, and shrinking one. He stayed out of the swirl of the activity of the other children and seemed like a "clam without a shell." His play showed a great deal of *oldmaid* preciseness and prissiness. He made neat little block arrangements, spent a long time straightening up the shelves, getting things in line, and putting big things into small spaces. He was very anxious about small details, becoming upset if the routine was at all changed. He would fuss at the teacher for any small variation in routine and often followed the teacher about doing his own manner of straightening up. He liked everything to be just right. With the staff of the Nursery School he was highly conforming and very dependent. He liked to help clean up, liked to wash, liked to take a nap, and often told others what to do in a rather pointed way. Signs of guilt were quite apparent and whenever he dirtied something, wet himself, or committed what he regarded as a violation, he became very tense and apprehensive; as if he felt that he had been a "bad boy."

One year later, at 4½ years of age, he was similarly described:

Conforming, good, kind, and nonaggressive. One of the Nursery School teachers remarked, 'Gentle Peter, meek and mild.' He always showed an extreme degree of fear: fear of the unknown, fear of height, fear of being attacked by other children, fear of being hurt, and fear of doing the wrong thing. For example, some of the children in the Nursery School were being called upstairs for scientific experiments in another part of the Institute. Peter became very fearful of these experiments and when someone came down the

stairs, Peter would say, "Not me—not me, today—tomorrow I'll go with you—but not today."

At age 4½ Peter was nonaggressive, very dependent, and showed little interest in mastering new problems. He was subject to many sources of anxiety. He was anxious over loss of nurturance from adults, and this contributed to his conformity to their demands. His fear of physical harm was unusually intense and this caused him to avoid many peer group activities. He typically showed signs of strong guilt following any mischievous behavior and misdeeds. The anticipation of making a mess, disobedience, or talking-back to his mother was so anxiety-provoking that Peter inhibited these reactions completely.

As we shall see later, Peter's conformity, passivity, withdrawal, and compulsivity were almost as strong at age 20 as they were at age 5.

Case Material. Jack L

Jack, like Peter, had a fairly strict superego, in that he showed concern with being obedient and doing the "right" thing. The two boys differed, however, in what they regarded as "right and proper." For Peter, passivity, dependency, and nonaggression were the proper modes of conduct. For Jack, activity, independence, and aggression were rewarded while passivity and dependence were viewed as "bad."

These two boys illustrate an important psychological principle. *Two children may have acquired dramatically different overt behaviors (e.g., independence or dependence) in response to the same underlying motives (desire to please the parents and identification with parental models).*

SEX TYPING. The tendency of Jack's parents to push him toward traditional masculine activities was intensified during these years. Jack's father regularly brought home cars and mechanical gadgets and encouraged Jack to play ball with the older boys. His mother encouraged him to pursue energetic activities. In her mind, boys were supposed to be active and out-of-doors, and not, as in Peter's case, strolling around the house listening to music and looking at pretty pictures. His mother was unhappy because Jack was still sleeping with a doll at 2½ years of age, and she regarded this behavior as "sissified." When Jack was 4, he ran home several times because some bigger boys had attacked him on the street. His father punished him for running away from the boys and instructed him to fight back the next time he was attacked. From then on Jack rarely retreated from the aggression of age mates. Peter's parents

would have punished him for fighting back; Jack's parents punished him for running away from a fight.

When he was almost 5, Jack became ill and, on recovering, temporarily developed a mild fear of other boys. His father became apprehensive and feared that Jack might become a sissy, unable to stand up to other boys. For some time thereafter, his father routinely shadow-boxed with Jack each night in order to build up his self-confidence and to make sure he would no longer be afraid of his peers.

It is important to recognize that Jack did not have a strong desire to be aggressive. For many boys, especially, those from a rejecting home, it would not be necessary for parents to encourage aggression in order to insure that their child would "fight" with other boys. Aggressive behavior is characteristic of children who feel threatened and rejected. For such children, aggressive behavior is a way of expressing retaliation to the adult world.

Jack, however, was accepted at home. He was not extremely frustrated or insecure. Consequently, he felt no strong desire to hurt or injure others. Nevertheless, since his parents felt aggressivity was an appropriate behavior for him, he was gradually acquiring an aggressive bravado with his peers. However, the motive underlying his aggressive veneer was not anger at the world, but anxiety over rejection for not behaving in accordance with parental wishes.

IDENTIFICATION. Jack was strongly identified with his father, often helping him at his place of business and, in play, adopting the role of the typical masculine heroes of young boys—a policeman, a cowboy, a fireman, or a football player. Jack was acquiring his father's mechanical and athletic interests but, in contrast to Peter, Jack's identification with his mother was weak.

PARENTAL ATTITUDES TOWARD DEPENDENCY. As Jack reached his fourth year, both parents put pressure on him to become more independent. They encouraged him to take his own bath, to dress himself, and to do errands for them. When Jack would whine for help his mother would ignore him and, in this fashion, she indirectly punished dependent overtures toward her.

This persistent training in independence had its inevitable result. By the time he was 5, Jack was taking his own bath, dressing himself, and priding himself on these self-help behaviors. He did errands around the neighborhood, and was encouraged to walk downtown, a distance of many blocks, to have his monthly haircut. Contrast this degree of inde-

pendence at age 5 with the clinging, timid, fearful dependence of Peter at the same age.

When Jack came to the Nursery School at 5 years of age the Fels observer noted:

Jack is handsome, capable, and vigorous, and endowed with techniques and personal abilities that made him a popular leader. He is the kind of little boy that is often seen in breakfast food advertisements or on the cover of *Parents* magazine. He is solidly built, broad-shouldered, big-boned, sturdy, and masculine in his posture and movements. Jack is robust, full of vigor, and has lots of muscular strength. He likes high, swift swinging; likes play that is full of stress, balance, and use of the muscles. He uses his whole body to express himself, standing with legs wide apart, hands on his hips, and with his whole-self full of importance. He is uninhibited in his frankness about his body, and is boyishly crude in many of his noises.

He was always busily employed at something. When he was outdoors he concentrated on highly organized sand-play using trucks, cars, planes; building roads, airports, and garages. He had a close gang of other boys and was usually involved in stereotyped cops-and-robbers play. Jack did excellent carpentry work and he showed good judgment in constructing various objects. He was a recognized leader and organized some of the best group-play of the session. He did not dictate to the other children, but had a knack of holding the group together in getting something done that was fun. Jack was a universal favorite among the adults in the Nursery School. In general, Jack was able to take people and things pretty much at their own value, interact freely, and maintain his identity without having to be offensive.

The picture of Jack at age 5 was in marked contrast to the one drawn for Peter. Jack was independent and prided himself on it; Peter was dependent. Jack actively dealt with new problem situations; Peter was timid and withdrawing. Jack was interested in the traditional masculine activities of mechanical games and athletics; Peter liked to read and listen to music. Jack's parents encouraged independence, aggression, and masculine activities; Peter's parents encouraged dependence, passivity, and nonmasculine behavior.

There were, however, some basic similarities between the two boys. They both came from affectionate and accepting homes and both had fairly strict superegos. Both boys conformed to adult demands and were concerned with doing the right thing, because they were anxious about loss of adult nurturance. The differences in type of potential conflict were already established. Jack was anxious over not playing the masculine role as his parents defined it for him, and this was to be a source of future conflict. For Peter, a major source of future anxiety was his haunting sense of inadequacy and a fear of being hurt and attacked by the environment.

REFERENCES AND ADDITIONAL READINGS

1. Allen, F. *Psychotherapy with children*. New York: Norton, 1942.
2. Andrus, R., & Horowitz, E. L. The effect of nursery school training: insecurity feeling. *Child Developm.*, 1938, 9, 169-174.
3. Axline, V. M. *Play therapy*. Boston: Houghton Mifflin, 1947.
4. Baldwin, A. L. Socialization and the parent-child relationship. *Child Developm.*, 1948, 19, 127-136.
5. Baldwin, A. L. The effect of home environment on nursery school behavior. *Child Developm.*, 1949, 20, 49-62.
6. Barker, R. G., Dembo, T., & Lewin, K. Frustration and regression: an experiment with young children. *Univer. Iowa Stud. Child Welf.*, 1941, 18, No. 1, 1-314.
7. Barker, R. G., Dembo, T., & Lewin, K. Frustration and regression. In R. G. Barker, J. S. Kounin, & H. F. Wright (Eds.), *Child behavior and development*. New York: McGraw-Hill, 1943, 441-458.
8. Block, J., & Martin, B. Predicting the behavior of children under frustration. *J. abnorm. soc. Psychol.*, 1955, 51, 281-285.
9. Cameron, N. *The psychology of behavior disorders*. Boston: Houghton Mifflin, 1947.
10. Challman, R. C. Factors influencing friendships among preschool children. *Child Developm.*, 1932, 3, 146-158.
11. Chittenden, G. E. An experimental study in measuring and modifying assertive behavior in young children. *Monogr. soc. Res. Child Developm.*, 1942, 7, No. 1.
12. Conn, J. H. The play interview as an investigative and therapeutic procedure. *Nerv. Child*, 1948, 7, 257-286.
13. Dollard, J., & Miller, N. E. *Personality and psychotherapy*. New York: McGraw-Hill, 1950.
14. English, O. S., & Finch, S. M. *Introduction to psychiatry*. New York: Norton, 1954.
15. Freud, A. Introduction to the technique of child analysis. *Nerv. ment. dis. Monogr.*, 1928, No. 48.
16. Freud, A., & Dann, S. An experiment in group up-bringing. In R. Eisler, et al. (Eds.), *The psychoanalytic study of the child*. Vol. 6. New York: Int. Univer. Press, 1941, 127-163.
17. Goodman, M. E. *Race awareness in young children*. Cambridge: Addison-Wesley, 1952.
18. Green, E. H. Friendships and quarrels among preschool children. *Child Developm.*, 1933, 4, 237-262.
19. Green, E. H. Group play and quarreling among preschool children. *Child Developm.*, 1933, 4, 302-307.
20. Greenberg, P. J. Competition in children: an experimental study. *Amer. J. Psychol.*, 1932, 44, 221-249.
21. Hagman, R. R. A study of fears of children of preschool age. *J. exp. Educ.*, 1932, 1, 110-130.
22. Hattwick, B. W. The influence of nursery school attendance upon the be-

- havior and personality of the preschool child. *J. exp. Educ.*, 1936, 5, 180-190.
23. Honigmann, J. J. *Culture and personality*. New York: Harper, 1954.
24. Jack, L. M. An experimental study of ascendent behavior in preschool children. In L. M. Jack, E. M. Maxwell, I. G. Mengert, et al. (Eds.), *Behavior of the preschool child*. Univer. Iowa Stud. Child Welf., 1934, No. 9, 3, 7-65.
25. Jersild, A. T. *Child psychology*. (4th ed.) New York: Prentice-Hall, 1954.
26. Jersild, A. T., & Holmes, F. B. Children's fears. *Child Developm. Monogr.*, 1935, No. 20.
27. Jersild, A. T., & Holmes, F. B. Methods of overcoming children's fears. *J. Psychol.*, 1935-36, 1, 75-104.
28. Jersild, A. T., & Holmes, F. B. Some factors in the development in children's fears. *J. exp. Educ.*, 1935, 4, 133-141.
29. Jersild, A. T. & Markey, F. V. Conflicts between preschool children. *Child Developm. Monogr.*, 1935, No. 21.
30. Jersild, A. T. & Fite, M. D. The influence of nursery school experience on children's social adjustments. *Child Developm. Monogr.*, 1939, No. 25.
31. Joel, W. The influence of nursery school education upon behavior maturity. *J. exp. Educ.*, 1939, 8, 164-165.
32. Kawin, E., & Hoefer, C. *A comparative study of a nursery school versus a non-nursery school group*. Chicago: Univer. Chicago Press, 1931.
33. Keister, M. E., & Updegraff, R. A study of children's reactions to failure and an experimental attempt to modify them. *Child. Developm.*, 1937, 8, 241-248.
34. Keister, M. E. The behavior of young children in failure: an experimental attempt to discover and to modify undesirable responses of preschool children to failure. *Univer. Iowa Stud. Child Welf.*, 1938, 14, 27-82.
35. Leuba, C. An experimental study of rivalry in young children. *J. comp. Psychol.*, 1933, 16, 367-378.
36. Levy, D. M., Release therapy. *Amer. J. Orthopsychiat.* 1939, 9, 913-936.
37. McCandless, B. R., & Marshall, H. R. Sex differences in social acceptance and participation of preschool children. *Child. Developm.*, 1957, 28, 421-425.
38. Macfarlane, J. W. The relationships of environmental pressures to the development of a child's personality and habit patterns. *J. Pediat.*, 1939, 15, 142-154.
39. Macfarlane, J. W. Study of personality development. In R. G. Barker, J. S. Kounin, & H. F. Wright, *Child behavior and development*, Chapter XVIII. New York: McGraw-Hill, 1943.
40. Macfarlane, J. W., Allen, L., & Honzik, M. P. A developmental study of the behavior problems of normal children between twenty-one months and fourteen years. *Univ. of Calif. Publications in Child Developm.*, 1954, No. 2.
41. Marshall, H. R., & McCandless, B. R. Relationships between dependence on adults and social acceptance by peers. *Child Developm.*, 1957, 28, 413-419.

42. Marshall, H. R., & McCandless, B. R. A study in prediction of social behavior of preschool children. *Child Developm.*, 1957, 28, 149-159.
43. Maudry, M., & Nekula, M. Social relations between children of the same age during the first two years of life. *J. genet. Psychol.*, 1939, 54, 193-215.
44. McKee, J. P., & Leader, F. B. The relationship of socioeconomic status to the competitive behavior of school children. *Child Developm.*, 1955, 25, 135-142.
45. Mummery, D. V. An analytical study of ascendent behavior of preschool children. *Child Developm.*, 1947, 18, 40-81.
46. Murphy, L. B. *Social behavior and child personality; an exploratory study of some roots of sympathy*. New York: Columbia Univer. Press, 1937.
47. Muste, M. J., & Sharpe, D. F. Some influential factors in the determination of aggressive behavior in preschool children. *Child Developm.*, 1947, 18, 11-28.
48. Newell, H. W. Play therapy in child psychiatry. *Amer. J. Orthopsychiat.*, 1941, 11, 245-251.
49. Page, M. L. The modification of ascendant behavior in preschool children. *Univer. Iowa Stud. Child Welf.*, 1936, 12, No. 3.
50. Parten, M. B. Social participation among preschool children. *J. abnorm. soc. Psychol.*, 1932, 27, 243-269.
51. Rogers, C. R. *The clinical treatment of the problem child*. Boston: Houghton Mifflin, 1939.
52. Rotter, J. B. *Social learning and clinical psychology*. New York: Prentice-Hall, 1954.
53. Sewall, M. Two studies in sibling rivalry. I. Some causes of jealousy in young children. *Smith Coll. Stud. Soc. Wk.* 1930, 1, 6-22.
54. Solomon, J. C. Play technique as a differential therapeutic medium. *Nerv. Child*, 1948, 7, 296-300.
55. Stevenson, H. W., & Stewart, E. C. A developmental study of racial awareness in young children. *Child Developm.*, 1958, 29, 399-409.
56. Stevenson, H. W., & Stevenson, N. G. Social interaction in an inter-racial nursery school. *Genet. Psychol. Monogr.*, 1960, 61, 37-75.
57. Thompson, G. G. The social and emotional development of preschool children under two types of educational programs. *Psychol. Monogr.*, 1944, 56, No. 5.
58. Vollmer, H. Jealousy in children. *Amer. J. Orthopsychiat.*, 1946, 16, 660-671.
59. Walsh, M. E. The relation of nursery school training to the development of certain personality traits. *Child Developm.*, 1931, 2, 72-73.
60. Wright, M. E. Constrictiveness of play as affected by group organization and frustration. *Character and Personality*, 1942, 11, 40-49.
61. Wright, M. E. The influence of frustration upon social relations of young children. *Character and Personality*, 1943, 12, 111-122.
62. Yarrow, L. J. The effect of antecedent frustration on projective play. *Psychol. Monogr.*, 1948, 62, No. 6.

PART

IV

MIDDLE CHILDHOOD

VI

DEVELOPMENT DURING THE MIDDLE-CHILDHOOD YEARS

I. EXPANSION OF SOCIAL ENVIRONMENT

During the middle-childhood years, from school entrance to preadolescence, the child's social environment expands tremendously. Among the crucial developmental processes of this period are crystallization of the child's sex-role identification, learning how to interact with peers, development of various academic skills, and strengthening of the superego. These psychological developments are precursors of the problems that adolescents and adults have to face. Thus, the ways in which the child handles the tasks of middle childhood will significantly affect his later behavior.

During this period, the school begins to function as a major socialization agency. It supplements the family's teaching, provides opportunities for increased contacts with peers, and, consequently, for stronger peer-group impacts on personality development.

The expanded environment to which the 6- or 7-year-old is exposed requires new adjustments—to school itself, to school and neighborhood peers, and to the child's social-class group. The reactions of the child in new situations are to a large extent dependent on the kind of person he has already become as a consequence of his past learning at home, in the neighborhood, and in nursery school. As Murphy has pointed out, "the new experiences of this age level mean very different things to different kinds of children" (98, 678).

The span from age 6 to 12 is a broad one, and there are important differences between the first (ages 5-9) and second (ages 9-12) halves of this era. Ideally, these two periods should be discussed separately. However, there are several reasons why this is difficult to do. For one thing, theories about this developmental period have not been as extensive or as

profound as those dealing with the first 5 years of life. Moreover, there has been less extensive empirical research on children this age than on younger children, perhaps because the 8-year-old is frequently evasive, resistant, and more difficult to investigate than the more ingenuous preschool youngster. Thus, we shall consider this period as a whole, without differentiating extensively between early and later childhood.

The middle-childhood years have been labeled *the latency period* by psychoanalytic writers because of their belief that the strong sexual motives and curiosities that were present at age 5 become repressed and lie "latent" until activated by events at adolescence. Some psychoanalysts have viewed latency as an inevitable phase of normal development. Others, particularly the Neo-Freudians, feel that the presence of a latency period is highly dependent on cultural factors. Our own thinking more closely parallels this latter view, for there are many cultures in which children indulge in a great deal of sexual activity. In fact, where no cultural restraints are imposed—as among Marquesans, Trobrianders, Pukapukans, and Baiga—overt heterosexual behavior increases continuously throughout childhood.

The relative paucity of such behavior in our culture is due primarily to increased social pressure in favor of acting in accordance with socially approved codes of behavior which forbid sexual expression in children. In some cases, children go through what appears to be a latency period simply because sexual behavior has been severely punished in the past, especially during the preschool period (120). Moreover, the emergence of new social interests and activities (see below) and the tendency of children of this age to prefer chums of their own sex may appear superficially to represent a loss of sexual interest.

Actually, preadolescents, even in our culture, manifest strong sexual interests and curiosity, though not so obviously or actively as children in the tribes mentioned above (59). Systematic observations of boys and girls between 5 and 16 years of age indicate that sex consciousness increases sharply between the ages of 9 and 11 (23). Kinsey reports that masturbation and sex play are quite common during this period of childhood (76).

A comprehensive review of the evidence concerning sexual latency in our culture led one author to conclude that "the relative de-emphasis in sexuality to which (some analysts) allude can probably be described more precisely as an increased emphasis on nonsexual behavior rather than any sharp decrease in underlying sexual concern" (10, 134).

The sex-role identification that began at ages 4 and 5 continues its development during middle childhood. In addition, certain motives and

defensive reactions that will determine much of the child's future behavior are being strengthened at this time. Aggression, dependency, and mastery behavior assume increasingly adult-like form during this period. Defensive reactions to the anxiety and conflict associated with these motives and to the stress of school entrance also become more firmly established characteristics of the child.

The simultaneous emergence of two new groups of social objects that will influence the child's motives and attitudes—peers and teachers—constitute a major environmental change. Until now, the child has been primarily dependent upon his parents for acceptance and praise. He has looked to them for a definition of what behaviors are "good" or "bad," what beliefs to hold, and what beliefs to reject.

During the elementary-school years the child interacts with new groups of people whose acceptance he actively courts. The sources of anxiety and motivation associated with his parents (i.e., anxiety over rejection and desire for acceptance) are now transferred to his relationships with playmates and teachers. If the values and motives of the peer group are similar to those of his parents, the child's existing attitudes and behavior will be further rewarded and, consequently, strengthened. However, if there is some inconsistency between the values of his parents and those of his friends, the child will be thrown into conflict and may begin to adopt the responses that are encouraged by his peers.

Beginning with the early school years, there is a stress on intellectual competence that most children have not previously experienced. School entrance, for many children, marks the beginning of an emphasis on the importance of intellectual skills—reading, spelling, speaking effectively—and the ability to initiate and complete tasks requiring persistence and special aptitude. During the preschool years, the child's own needs for feeling competent or adequate were gratified, in large measure, through his identification with his parents. He felt adequate because he was identified with his parents—with a powerful and effective family.

In contrast, the 6- or 7-year-old is forced to begin evaluating himself on the basis of his own skills and attributes, rather than on the basis of those parental traits that might be his vicariously. The process of developing special skills is catalyzed not only by the school but by the peer group. Parents can always find something good in their child. The child feels that his parents accept him, not because of anything he can do, but because he is their child and they love him. Acceptance by peers, on the other hand, depends primarily on what the child can offer—his talents, his assets, his skills. Acceptance must now be earned the hard way. The child who has no skills or desirable characteristics is usually

rejected quickly and pointedly. The reactions of the peer group help the child define himself and exert a major influence on his self-concept.

- ✓ Rejection by peers is a sharply felt experience that can have a long-lasting effect on the child's self-evaluation during adolescence and adulthood.

✓ Several important conflicts and sources of anxiety confront the school-age child. The most common and probably the most important of these are (1) potential rejection by parents and peers, (2) open and direct expression of aggression and rebellion against parents, teachers, and peers, (3) failure to live up to the stereotyped conception of one's sex role, and (4) lack of skills and personal competence.

As described earlier (cf. Chapter 10), when the child or adult becomes anxious, certain automatic defensive processes beyond the individual's level of awareness are triggered into action. This process is not unlike that of a thermostat clicking on when the temperature of the house falls below a certain level. As we have seen, these automatic processes may take various forms, but all are designed to reduce the individual's level of anxiety.

During this period, two important defensive behaviors are withdrawal or retaliation in the face of anxiety-arousing situations. When faced with an obstacle, stress, or threat, the child can either withdraw from the anxiety-arousing situation, deny the threat, or avoid dealing with the unpleasant situation in some other way.

One alternative reaction is to attack the source of the anxiety and attempt to conquer it. For example, most children who enter a new play group for the first time feel tense and anxious over possible rejection by the other children. One reaction to this uncomfortable feeling is to withdraw and remain on the sidelines. This defensive behavior allows the child to avoid the feared situation and possible rejection. A much different reaction would be to approach the other children and make an attempt to enter into the game despite some unsureness about peer acceptance.

The avoidance of playmates has an analogue in the child's reaction to difficult schoolwork. He may find a homework problem too difficult and put it down and go out and play. This behavior may lead to parental criticism and punishment, but these often seem less painful than the anxiety he thinks he would feel if he attempted the task and failed. A second child with the same urge to abandon the work may decide to stick with the task until it is finished. Not all resistance to homework is due only to anticipations of failure, but fear of failure is one major determinant of this reaction.

The development of the tendency to "flee or fight" grows much like a snowball on a mountainside. Each time the child runs from an anxiety-arousing situation, it becomes easier to do so the next time a problem or stress arises. The 7- and 8-year-old child is developing "preferred defensive responses to stress." The histories of the children studied at the Fels Research Institute indicate that the girls who consistently withdraw from anxiety-arousing events during these years are likely to continue to do so in college and later adult life. If they attack sources of anxiety and obstacles at age 10, They are likely to retain this habit when adult crises arise (73).

The effects of family and peer interactions on the child's personality on the one hand, and the influence of school, on the other, will be considered in separate chapters. In reading them, however, it is important to bear in mind that these various social factors are isolated and considered individually only for convenience of exposition. Actually, for the child, these are interrelated, interacting aspects of the environment. For example, the peer group and school are influencing him at the same time that he is being exposed to family, church, and neighborhood pressures. It is, therefore, difficult in many cases to separate particular antecedents from the total context of influences (except for purposes of discussion) and to evaluate their relative contributions to the child's overall personality development.

PHYSICAL GROWTH FACTORS DURING MIDDLE CHILDHOOD

General Trends in Physical Development

By the age of 6, physical growth, which has been proceeding at a remarkably fast pace, has begun to decelerate. The average child of this age in America stands about 46 inches tall and weighs about 48 pounds (136). His height increases during the middle-childhood years at the rate of about 5 or 6 percent a year, his weight at the rate of somewhat over 10 percent a year. By the time he reaches the age of 12, his height has increased to about 60 inches, and his weight to between 95 and 100 pounds (136).

Up until the tenth year, boys, on the average, are slightly taller than girls. However, from then until about 15, girls are, on the average, slightly taller than boys—as any dancing school instructor can testify (138). (See Fig. 40.) The pattern is similar with regard to weight. Until about 11 years of age, boys are slightly heavier than girls, but after that age girls weigh more (138).

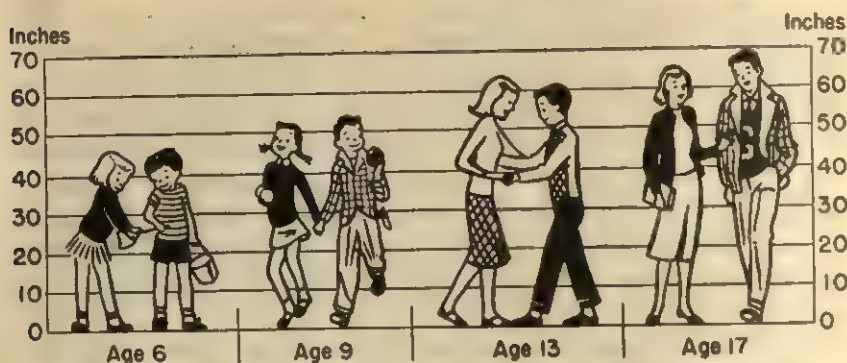


FIG. 40. Heights of boys and girls at various ages. (From *How Old Are You?* With permission of Metropolitan Life Insurance Co.)

The child's body proportions are already much like the adult's. The slight changes in build which occur in this period result largely from lengthening of the child's limbs (136).

Other changes occur too. Because of deposits of various mineral salts, especially calcium phosphate, the 12-year-old's bones are harder, but easier to break, than the 6-year-old's. At about 6, the average child loses his first teeth, but by 12, he has most of his permanent ones (18). With advancing age from 6 to 12, blood pressure increases, and pulse rate decreases (18). The child needs more to eat and he eats more. Concomitantly, muscle tissue increases proportionately, and the child grows stronger. Sex differences in proportion of fat and muscle tissue, noted earlier, still obtain, with boys having more muscle mass and girls a greater proportion of body fat. As judged by a number of physical measures, boys are twice as strong at 11 as they were at 6 (69). Girls also increase rapidly in strength during this period, although they remain weaker than boys at all ages.

The child also becomes better integrated and better coordinated, thus becoming capable of more complex motor and manipulative tasks. In general, boys surpass girls in speed of reaction (48) and coordination of gross bodily movements (66).

Although various aspects of growth (i.e., rates of development in dentition, height, weight, bone hardening) are generally correlated with one another, not all children develop in the same way or at the same rates. Some grow relatively more in height, others in weight, producing variations in general body types such as "tall and slender," or "short and stocky."

Physical Disease and Defect

The above data on physical development apply only to representative samples of school children in the United States today. The figures would not have been the same 25 years ago in this country, nor would they be the same for other countries today. In reviewing data on patterns of physical disease and defect among American school children, the lack of generality of such statistics must be emphasized. Changes in general economic conditions, cultural customs, medical and welfare facilities, educational and scientific development, and a host of other factors, affect the health status of the entire population.

DEATH RATES. Figure 41 shows the remarkable decline in the death rate for children in recent years. This has been due in large part to medical progress in the treatment of infectious diseases. In the age range 5 to 9, deaths from tuberculosis, communicable diseases, pneumonia, and appendicitis have declined about 90 percent in only 25 years. Accidents now comprise the chief cause of death among children of this age (138).

INCIDENCE OF HEALTH PROBLEMS. Although the death rate has been markedly reduced, childhood disease and physical defects such as heart conditions, diabetes, crippling, and allergies are still quite common. A recent study of elementary-school children in seven California cities showed that absences from school were primarily due to: (1) respiratory diseases, including colds (46 percent); (2) common communicable diseases, like measles, chicken pox, scarlet fever (13 percent); (3) digestive disorders (6 percent); (4) miscellaneous medical causes (22 percent). These figures stand in sharp contrast to a total of only 13 percent absent for nonmedical reasons (61).

In addition, there are many children who are present in the schoolroom but are nevertheless suffering from a variety of physical ailments. For example, recent studies have shown that approximately 15 percent of school children suffer from defective vision (20/30 or worse), while over 4 percent have defective hearing (138).

Other conditions, such as poor nutrition and tooth decay, are also common among school children and, rather surprisingly, their incidence is almost as great among upper- as among lower-income groups (138). In addition, many children suffer from a variety of chronic diseases or defects, such as heart conditions, diabetes, crippling, and allergies.

Physical Defect and Personality

Obviously, the child's physical status can influence his emotional and social adjustment. Chronic illness may mean that the child tires easily or

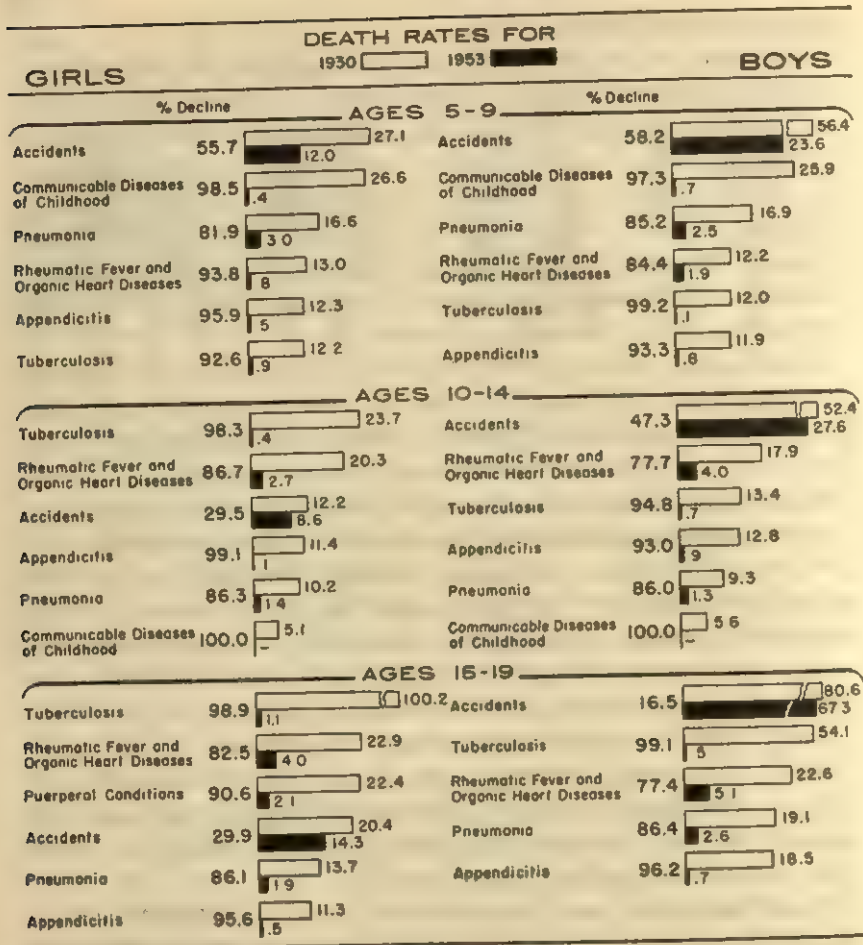


FIG. 41. Death rates per 100,000 in school-age boys and girls from various causes, 1930 and 1953 compared. (After G. M. Wheatley and G. T. Hallock, *Health observations of school children*. New York: McGraw-Hill, 1951.)

is frequently irritable and, consequently, has difficulty in social relationships and in academic work. A child's crippled limbs or defective heart may bring too much pampering from adults in his environment, while other children may reject him as "different." Bigger children may be more readily accepted as leaders than smaller children. Children with defective vision and hearing may receive poorer school grades, and healthy children may be regarded as more intelligent than their sickly peers.

A number of investigators have examined the relationships between

physical defect and personality development. Although there are few systematic studies of the partially seeing child, the available data indicate that

... the unpleasant appearance of heavy glasses and the inability to participate in many games tend to cut off these children from others. There is a possibility of undue nervous tension resulting from trying to see with reduced vision. Many children may have feelings of inadequacy and inferiority because they are unable to keep pace with children of good vision. Visually handicapped children have been found to be more docile, less active, and to have less initiative than seeing children of corresponding ages (18, 89).

After reviewing the literature concerning hearing loss, Breckenridge and Vincent concluded that:

The deaf or hard-of-hearing child is often a misunderstood child. He may be mistaken for a child of poor mental ability. He may be then neglected and become withdrawn. Because he does not attend, he may be marked as indifferent, stubborn, careless, and impolite. The characteristics that are commonly attributed to the deaf, mentally sluggish, inattentive, suspicious, and melancholic, are not true according to teachers of deaf children (125). The very nature of his deafness may have in some cases made adults unduly critical of a child. The child may hear better at one time than another. Some voices may be more distinct than others. It can be easy for any other than a keenly observant and well-informed person to lay such a child's variable response to deficiencies in character. Deaf children can be misunderstood also, because they may misinterpret situations. Because they fail to hear all the facts, their conclusions and hence their behavior may seem strange to those who, because they can hear, can base their judgment on all the facts. Such children are often considered "dumb" or "queer" (18, 90).

A number of research workers have focused attention on the consequences of chronic disease or crippling. For example, in one study, groups of diabetic and nondiabetic children were compared (13). While the diabetics did not appear to be any more maladjusted than the others, they were more frequently

... careful, meticulous, earnest, and conscientious. This coupled with good school reports, was attributed ... to the habit-training forced upon the diabetic child by the strict regime made necessary by the disease. School reports indicated a predominance of desirable traits, and few instances of feelings of inferiority and attention-seeking devices. Parents reported that the personality of these children had changed little since the onset of the disease. Excitability and irritability were the only traits that had increased considerably. There was some indication that these children had become somewhat more cautious and stubborn (18, 87).

However, changes such as these might reasonably be expected in children suffering from any chronic disease (18).

Most of the studies dealing with chronic illness, defect, or crippling are in agreement that these conditions themselves have no invariant effects on children's behavior. Crippled children, as a group, are only slightly more maladjusted than their noncrippled peers (74). If a child's handicap is treated sympathetically but realistically by his parents, teachers, and peers, his adjustment will probably not be seriously affected. However, inconsistent, rejecting, or overprotective parental behavior may have an adverse influence, leading to maladjustment and personality problems (2, 46). Spock (132) cites the example of a boy who was born with only a thumb and one finger on his left hand.

At two and one-half years the child was happy and could do almost as much with his left hand as with his right. His six year old sister was fond of him and proud of him, wanting to take him with her everywhere she went. The sister never seemed to worry about the boy's hand. The mother, however, was very conscious of the missing fingers. She winced when she saw a strange child catch sight of his hand and stare. She thought it fair to the child to keep him home where he wouldn't be subjected to curiosity and remarks, and made excuses when he wanted to go shopping with her (123, 468).

In this way, the child, who was not initially self-conscious about his defect, was made so by the parent's attitude.

If the parents from the beginning are unhappy or ashamed about a child's appearance, always wishing he were different, over-protecting him, keeping him from mingling with others, he is apt to grow up turned in on himself, dissatisfied, feeling that he is queer. But if they take his disfiguring birthmark or a deformed ear as of no great importance, act as if they consider him a normal child, let him go places like any one else, not worry about stares and whispered remarks—then the child gets the idea he is a regular guy and thinks little of his peculiarity (123, 469).

Physique and Personality

Most children do not suffer from chronic illness, crippling, or serious physical defects. However, one might ask whether a child's general body type is related to his personality characteristics.

This question has long intrigued both ancient and modern man, and Aristotle wrote a lengthy treatise on the relation between body characteristics and temperament. Through the centuries many scientists have attempted to devise objective methods of classifying people into body types. The most popular categories are: short, fat build (sometimes called the endomorph); long and thin physique (the ectomorph); and muscular

and well-proportioned body structure (the mesomorph). Of course, there are some individuals who do not fit neatly into any of these categories. Having devised physical classifications for people, it is of interest to ask if these physique types are associated with any consistent cluster of behaviors or personality characteristics. Most of the research work on this problem has been done with adults and is still inconclusive. However, a study by Sanford and his associates (117) provides some interesting relevant data. The subjects were 48 private-school children, and, as the authors themselves point out, cannot be regarded as a fair sample of all children. Hence, the findings must be considered suggestive rather than conclusive.

On the basis of a variety of personality tests, staff ratings, teacher interviews, and school reports, several personality syndromes or broad, general patterns (collections of characteristics that go together) were isolated. The investigators then attempted to relate each of these patterns to both physiological and body-build characteristics. The following is a highly condensed version of the results of the study.

One of the behavior patterns, called *structured personality*, was made up of the following characteristics: orderliness, self-sufficiency, quiet dignity, satisfaction from the world of thoughts and feelings, cooperativeness, and strong conscience. This personality picture was characteristic of more children with tall, narrow, than with short, broad builds.

Children manifesting patterns two and three, the *active* and *inactive* child, differed markedly from each other in both psychological and physiological make-up. As a group, the former was characterized by "lively self-expression," playfulness, talkativeness, productivity, creativity, good physical coordination, and greater strength and energy. The *inactive children*, on the other hand, were sluggish, passive, and poorly coordinated. Neither activity nor inactivity was associated with any particular type of body build.

Passivity, dependence on others, and fearfulness were the major attributes of the *timid child*, the fourth syndrome. Physically these children tended to be "small in stature, poorly nourished, poorly coordinated, relatively weak, and apathetic" (117, 554). They also had more illnesses and were absent from school more often than other children.

The *social being*, the child exhibiting the fifth personality syndrome, related actively to others and liked "to be affectionate with them, to play with them, to please and defer to them." He was generally a "good fellow, assured and uninhibited, and able to express himself in a variety

of ways." Physically, such a child was most likely to be short, stocky, and well coordinated.

Since the sample involved in this study was small and highly select, the observed relationships between physical and psychological characteristics must not be considered definitive. Nevertheless, it is interesting to note that a number of these findings are consistent with the findings of studies of the relationships between the body builds and psychological characteristics of adolescents and young adults (24, 47, 121).

In particular, these data are somewhat consistent with a study of 500 delinquent boys and 500 nondelinquents matched on intelligence and social class (47). There were three times as many boys with extreme mesomorphic body builds (i.e., muscular, well built) in the delinquent as in the nondelinquent group (23.2 percent vs. 7.1 percent). On the other hand, there were over ten times as many boys with extreme ectomorphic builds (tall and thin) in the nondelinquent as in the delinquent group (14.5 percent vs. 1.8 percent) (47). It is interesting to note that Sanford and his associates, in the study described above (117), found that children who were thoughtful and had a strict conscience' (the *structured personality*) were more likely to be ectomorphic in build; whereas the *social being*, who was relatively uninhibited, was more likely to be mesomorphic in physique.

It is possible to draw several kinds of conclusions from studies of this sort. For example, it might be concluded that genetic factors determine both the particular physical attributes of the child and his personality characteristics. However, it is just as likely that children with different body builds encounter different learning situations and are subjected to differential treatment by parents and peers. The individual's physical characteristics may affect his behavior and personality "through modifying the conditions for learning" (24, 450). For example, the boy who is thin, nonmuscular, and poorly coordinated is unlikely to achieve success in physical tasks or in athletic games—activities that school-age boys value highly. As a consequence, he is likely to have little prestige with his peers and may learn to withdraw from them. In time, he may begin to appear timid and introverted. The strong, well-muscled boy is more likely to be accepted by his peers, to become involved in group games, and, therefore, to adopt the aggressive and extroverted behaviors that are characteristic of school-age boys. Since most delinquent acts among boys occur in "gangs," the boys who are members of a peer group are more likely to become involved in delinquent activity than boys who have withdrawn from their peers. The commission of a

delinquent act is, of course, a function of a great many factors, including social class, family structure, intelligence, and the like. Thus, there is no one-to-one relation between physique and delinquency. However, it is possible that a child with a given body build may be predisposed to adopt certain classes of behavior, depending on the specific social class and familial environment in which he has been reared.

These examples are hypothetical, but illustrate some of the ways in which physical characteristics might determine certain conditions of learning and thus influence the child's personality development.

SEX ROLE IDENTIFICATION IN RELATION TO PERSONALITY DEVELOPMENT

As we have noted, the preschool child identifies primarily with his parents. To the average 5-year-old, parents are strong and competent idealized heroes who serve as models for the child. However, school-age children begin to idealize more glamorous and prestigious figures outside the immediate family.

When children between the ages of 8 and 18 were asked to write an essay on, "The person I would like to be," those below 10 most frequently said they wanted to emulate their parents. Older children often named real or imaginary glamorous adults (60). In another study (142), it was found that 7-year-olds emulated their parents, but adolescents more frequently idealized people outside their immediate family. There was a tendency for girls to idealize people they knew, whereas boys respected people who had status in society at large.

The world view of the 10-year-old is a rapidly changing one. New heroes emerge from newspapers, television, movies, comic books, and magazines. These heroes appear stronger, more daring, more intriguing, and more attractive than plain old mom and dad. The movie star, the football hero, the pilot, the airline hostess, the scientist, the missile expert, the professor, the doctor, and the nurse have dramatic appeal for the child, who may see these figures as models to emulate. In his attempt to identify with them, he begins to imitate the behavior of these people, or at least, his conception of their behavior. Thus, the 8-year-old boy may swagger like a general or attempt to concoct chemical compounds like a scientist. The model a particular child finds most attractive will be a function, in part, of his own skills and personality at the time, and the degree of pressure exerted by his family and friends toward adopting sex-appropriate roles.

As might be expected, the specific interests a child develops will be related to the specific heroes or models he has chosen for identification.

If he admires athletes, he is apt to become interested in gross motor sports. If he admires scientists, he is likely to play with a chemistry set in his basement. If a girl has chosen a movie star for a model, she is apt to be concerned with her clothes and physical appearance.

Sex-Typed Personality Traits

Typically, boys are expected to be strong, courageous, assertive, and ambitious. Girls however, are expected to be sociable, well mannered, and neat, but to be afraid of threatening objects and to withdraw from unusually difficult problem situations.

The books that children read also portray girls and women as timid, frightened, noncompetitive, and unambitious. Males, on the other hand, are described as courageous and heroic (25).

These differential values for the sexes are held by both parents and children. In one study, 400 mothers of fifth-grade children were interviewed and asked to select, from a list of seventeen traits, the three they would regard as most desirable in their child. Mothers felt that dependability, ambition, and good school grades were more important for boys; manners, popularity with peers, and neatness were more important for girls (80). Moreover, the middle-class mothers made less of a distinction between the values that are appropriate for boys and girls. Working-class mothers, on the other hand, had different standards for the sexes. In short, traditional sex-typed behaviors were of more concern to working-class parents than to middle-class parents.

Children of school age are highly sensitive to male and female personality characteristics, activities, and interests. In one study, a large number of California children in Grades 1, 3, and 5 responded to the Reputation Test (132, 133). This test consists of a series of brief word-pictures, and subjects are instructed to match these descriptions with the names of classmates who best fit them. The items (word-pictures) are arranged in pairs, one item designating the positive extreme of a dimension and the other, the negative. For example, one pair labeled "Popular—Not Many Friends" consists of the following items: Who are the ones everybody likes? Who are the ones nobody likes?

These children characterized the typical girl as quiet, popular, full of fun, not quarrelsome, a good sport, a little lady, good-looking, not a show-off, tidy, and friendly. The typical boy, on the other hand, was judged to be wiggly, quarrelsome, bossy, a show-off, inclined to take chances, not bashful, good at games, and a "real boy" (132).

The picture of the typical boy and girl as conceived by children even in

the primary grades seems to be almost a photostat of the common identification made by adults in our society wherein aggressiveness, restlessness, and daring characterize masculinity, and amiability, docility, and timidity describe femininity (132, 19).

Even very young children perceive the masculine role as more aggressive than the female role and ascribe more fear-arousing qualities to males than to females. In one study, first- and second-grade children were shown pairs of pictures illustrating a dangerous and a harmless animal (e.g., a tiger and a lamb). The child was asked, on separate occasions, "Which one is more like your father?", "Which one is more like your mother?", "Which one is more like yourself?" Boys and girls agreed that the quality of being "dangerous" was more characteristic of fathers and boys (i.e., of the male role) than of mothers and girls (72).

Moreover, children seem to attend more closely to a man than to a woman when the adult is solving a problem. A group of 120 kindergarten children were first given a series of mazes in which each child had to trace the path from the beginning to the end without crossing any lines. One to three weeks after this test session some of the children were retested under the following conditions. An adult (a man for half of the children and a woman for the other half) and a child first played for ten minutes, after which the child watched the adult solve some of the mazes that the child himself had previously failed during the first test session. The child typically watched the adult while he or she solved the maze. Another group of children were retested without the opportunity of watching an adult solve the mazes that they had failed. The children who had the opportunity to watch an adult did better on their second chance with the mazes than those who did not have a chance to copy the adult. However, the children who watched a male adult solve the mazes performed better than those who watched a female adult. One interpretation of this result is that these young children attributed more competence to the adult male than to the female, paid closer attention to his performance, and consequently did better when they attempted the maze problem themselves (115).

Adult men and women, as well as boys and girls, view males as stronger, more competent, more aggressive, and more daring than females (8). A study of the content of the concepts "male" and "female" in adults indicated that adult women felt, in comparison to men, "weaker, warmer, more inadequate, more frightened, less aggressive, and less mature." (8) The adult woman's view of herself is congruent with the traits that the girl is encouraged to adopt as a young child. Thus, children and adults

share a common perception of the male role as powerful, aggressive, and fear-arousing, and a perception of the female role as quiet, passive, and friendly. Moreover, as boys and girls mature, they begin to attach greater value to the attitudes and characteristics of males, than to those of females (122). By age 14, girls value male personality characteristics as much as boys do. We would expect, therefore, that the average girl would have a more negative self-concept than the average boy and would be generally less secure in her social interaction.

Sex-Typing and Peer Acceptance

The child's acceptance or rejection by his friends is determined in part by the degree to which he has adopted traits that are appropriate for his sex role. A boy who is easily frightened and withdraws from obstacles will be more vulnerable to peer rejection than a girl who displays the same behavior, because boys are supposed to frighten others rather than to be frightened by others. The cry of "sissy" or "fraidy cat" is a frequent and cutting one among a group of 8-year-old boys. This phrase is less common among girls, because to be "scared" is a more legitimate emotion for a female.

Thus, the peer group reinforces the boy's acting like a "real boy" and the girl's being a "real girl," while it punishes his "sissy" and her "tomboy" behavior. Sex-appropriate responses, therefore, become progressively more firmly established and, consequently, boys and girls become more disparate in their activities, interests, and attitudes as they grow older. Tyler (134) has suggested, on the basis of a study of 200 fourth graders, that most of the average child's interests are determined by their sex appropriateness; that is to say, whether or not the interest fits the cultural stereotype of a male or female activity, i.e., sports, gross motor skills, mechanics, and science for boys; clothes, cooking, gardening, music, and art for girls. Moreover, children are dogmatic in repudiating activities, goals, and interests that are characteristic of the opposite sex. For example, athletics are rejected by girls and cooking by boys. It appears that the sex appropriateness of an activity exerts a major influence in the direction of the child's interests, goal strivings, and vocational choice.

Since peers are likely to reject children who display behavior that does not conform to traditional sex-role values, it may be predicted that some children will modify their behavior to conform to these peer conceptions. Some evidence confirming this prediction comes from a study of popularity among school children (133). In this study, it was observed that quarrelsomeness and lack of quietness were negatively associated with popularity in girls, but had little to do with prestige status

among boys. Apparently, aggression and loudness in girls were punished by unpopularity, while their absence was rewarded with peer acceptance. Daring and lack of bashfulness were found to be associated with popularity in boys (i.e., the manifestations of these characteristics were rewarded by popularity).

However, at ages 10-11, girls who are extremely withdrawn are less popular than more socially outgoing girls. With age, the girl is expected to be sociable and capable of a friendly interaction with others. Unusual degrees of social reticence are probably interpreted by older children as signs of shyness and anxiety, and, therefore, such girls are not very popular. In summary, awareness of sex-appropriate behaviors is a permanent part of the child's attitude structure and influences his goals, behaviors, values, and interests during these later childhood years.

The Fels longitudinal studies suggest that those children who adopted traditional masculine (athletics, mechanics, competitiveness) or feminine (gardening, cooking, sewing, music) activities during the early school years retained this orientation through adolescence and adulthood. The tendency to retain traditional sex-typed behaviors was one of the most stable aspects of the child's personality.

Differences in Sex-Typing: Sex and Social Class Factors

The methods used in training boys for sex-appropriate behavior differ, in some degree, from the methods used in training girls. Moreover, the various social classes have divergent views as to what constitutes characteristic and adequate male and female behavior. They may also differ with respect to the age at which they train their children for sex-appropriate responses. Hence we would expect the sex of the child and his social-class background to affect his rate of acquisition of sex-appropriate behavior.

Rabban (109) investigated these differences, using 300 children between 30 months and 8 years of age as subjects. Half of these children were from upper-lower, or working-class families, living in urban industrial areas, and half were from upper-middle-class suburban families (fathers in executive, business, or professional positions).

The examiner confronted the children individually with 16 interesting toys, eight conventionally considered appropriate for boys (gun, steam-roller, dump truck, auto racer, fire truck, cement mixer), and eight for girls (high chair, baby buggy, bed, doll dishes, purse, baby doll, bath-inette). Each child was asked to select the six toys he liked best.

The data revealed that boys generally showed earlier and clearer awareness of the behavior (choice of toys) appropriate for their sex. Both

girls and boys of the lower class became aware of their sex-role patterns sooner than middle-class children. Thus, while lower-class boys reached a stable, high level of sex identification by the time they were 5, middle-class boys did not do so until they were 6. At the age of 6, lower-class girls made definite sex-appropriate choices, but middle-class girls did not show clear-cut acceptance of their role even by the age of 8 (109).

It will be recalled that (37) 5-year-old boys had a more definite identification with fathers' behaviors than girls had with mothers' behaviors. Girls of this age seem to be equally identified with both parents. All these findings suggest that the behavioral standards for boys may be more clearly defined than are those for girls. Boys of 7 are expected to be brave and independent. Girls of 7, on the other hand, are allowed to be both afraid and brave; to be fighters or nonfighters. Tomboy traits in a 7-year-old girl are less subject to punishment than are feminine traits in a 7-year-old boy. Young girls are permitted to practice both masculine and feminine behaviors, and this may contribute to their less clear-cut adoption of traditional female behavior.

There are several possible explanations for the earlier learning of sex-appropriate behavior among lower-class children. Perhaps the customs, traditions, and taboos of lower-class families provide early definitions and strong rewards for early sex-appropriate behavior and severe punishment for sex-inappropriate behavior. Middle-class families may be more permissive in this respect and not as likely to punish masculine behavior in girls or feminine behavior in boys. It is also possible that adult masculine and feminine roles are more clearly differentiated in lower-class families. These parents may provide more clear-cut models of sex-appropriate behavior, thus facilitating imitation of these responses. In addition, the middle-class father may more frequently spend much of his time away from home, and consequently his son may be slower in learning to imitate his responses (109).

Vocational Choice: Sex and Social-Class Factors

The child's choice of vocation is influenced, in part, by its sex appropriateness. The child's social class, his pattern of identification, and his general personality also help determine his choice of an occupation. As pointed out earlier, the 8-year-old child is increasingly likely to include among his "ego ideals" persons who are not members of the family. The heroes chosen by children may provide clues to their aspirations and may be predictive of eventual occupational choices.

The heroes or heroines of the 10-year-old provide the child with a set of goals and foster the development of relevant skills. The child who

has no ego ideal or hero at age 10 may be confused about a possible occupation when he becomes an adolescent.

Identification with familial figures and others outside the family, and the establishment of heroes are significant aspects of the child's development during this period. Many people attempt to conduct their lives according to the goals they established during childhood. Although children may differ in the types of goals they choose, it is important that each child have some stake in the future; that he have some goal he is "shooting for"; some hero or heroine he or she wants to be like. This stake in the future furnishes much of the motivation to adopt adult behaviors and to develop and perfect adult skills. These in turn provide the child with a clearer conception of himself and greater self-confidence. Thus, the child who admires physical scientists will be motivated to learn about physics, chemistry, and mathematics. He may read books on these subjects and try to conduct his own experiments. Similarly, the boy who admires the current basketball hero will spend hours practicing foul shots in his back yard.

Of course, the values of the child's family, friends, and social class exert a major influence on the type of hero he emulates. Questionnaire responses of a large group of fourth- and fifth-grade children showed that the father's occupation and education were excellent predictors of the child's job aspirations (5). Boys with professional fathers were more likely to look forward to a professional vocation than sons of working-class fathers. Girls' vocational choices were more independent of social-class position and more homogeneous. The vocations of nurse, teacher, and secretary were the major choices for girls of all social classes. The 10-year-old girl may feel that there is a limited choice of vocations available to her; thus, in her choice the background of her parents is of less influence.

The child's choice of career is limited by the *sex* and *social-class* appropriateness of the vocation. Boys are reluctant to select the vocation of hairdressing or nursing; girls are reluctant to become engineers or lawyers. Lower-class boys rarely decide to be diplomats; middle-class boys avoid the vocation of truck-driver. These social-class and sex-typed attitudes are established early in the development of the child's conceptual scheme of the world (3, 281).

The Ability to Set Long-Range Goals

The vocational goal of the child is, in part, a function of his training in the ability to delay gratification of immediate needs in order to attain long-range goals. That is, the child must learn that it is often

necessary to tolerate postponement of an immediate reward (i.e., delay of gratification), in order to obtain a greater reward at a future date. For example, the child must forego his desire to watch television or play baseball because he has to do his homework. However, he is told that if he does his homework, he will obtain a good grade, receive the acceptance of his teacher and parents, and prepare himself for high school and college.

A willingness to forego an immediate reward in order to gain a greater reward in the future is related to the child's age, social class, cultural milieu, and family structure. The relevance of each of these four dimensions has been demonstrated in a series of investigations on American and West Indian children. In one study (94), 53 boys and girls from ages 7 to 9 (Negro and East Indian children from Trinidad), filled out a short questionnaire and then were told that they could have a "small piece of candy now or a larger piece the following week." The children understood that they had to choose between these alternatives. About 80 percent of the 7-year-olds chose the smaller piece, while only 20 percent of the 9-year-olds chose the smaller piece.

This relation between a preference for the "delayed, greater" reward and a child's age was also found in a group of American school children in Grades 1-6 (95). In this study the experimenter used different amounts of delay for different groups (1, 5, 7, 14, and 28 days). When the delay was 1, 5 or 7 days, the younger children chose the smaller candy bar immediately, while the older children preferred to wait for the larger candy bar. When the delay was unusually long (28 days), most children preferred the immediate reward. Further, the more intelligent children were more likely to wait for the larger reward. This important finding supports the earlier statement that effective performance in school requires the capacity to invest effort in the execution of a task in anticipation of a future reward. It also suggests the presence of an important link between the personality of the child—in this case his ability to tolerate the frustration of not receiving the immediate reward—and the quality of his intellectual efforts as applied to problem tasks.

In a third study (96), Trinidadian Negro children (ages 11-14) indicated their preference for small, immediate versus larger, delayed rewards and also made up stories to a series of pictures suggesting achievement and mastery behavior. The children who preferred the delayed reward were more likely to tell stories in which the hero attempted to perfect

a skill or worked hard at mastery of a task (96).

Finally, the preference for delayed rewards appears to be related both to cultural factors and to the structure of the child's family. Groups of school-age children (ages 8-9) from Trinidad and Grenada (both in the West Indies) indicated their preference for either the small, immediate or larger, delayed reward (97). The children from Trinidad, a subculture in which impulsive behavior is prevalent, were more likely to choose the immediate reward. The children from Grenada, a subculture in which people are more willing to work for bigger rewards, were more likely to choose the delayed reward. Anthropological observations suggest a major personality difference between the Negro groups of the two islands (i.e., Trinidad vs. Grenada). The Trinidadian tends to be *more impulsive, indulges himself, and settles for relatively little if he can get it right away*. In contrast, the Grenadian, although on the whole poorer, is said to be *more willing and able to postpone immediate gains and gratifications for the sake of larger rewards and returns in the future*. These observed personality or "national character" differences are supported by the further observation that a Trinidadian's savings (e.g., for the education of his children) tend to be less than a Grenadian's of equally poor, or even poorer, circumstances (97). Thus, the values and attitudes of the cultural surroundings in which the child is reared appear to exert their effect early in life (97).

Moreover, children who were living in homes from which the father was absent were more likely to choose the immediate reward than those who were living with an intact family including both father and mother. This relation held for both the Grenadian and Trinidadian children, aged 8 to 9 (97), and was also found true of a group of 53 Trinidadian children, aged 7 to 9 (94). It is reasonable to speculate that absence of a father contributes to a lack of stability in a household and facilitates the development of a "fatalistic" attitude toward life—an attitude characterized by a lack of trust in the environment and, therefore, an unwillingness to work hard for future rewards that *might not come*. It is interesting to note that the relation between absence of father and choice of the immediate reward did not occur for older children (ages 11-14). The investigator suggested that as the child matures he meets people outside this immediate household who may counteract his feeling of mistrust of others. Consequently, some children may change their attitude toward immediate gratification as a function of positive social experience outside the immediate family (97).

The ability to tolerate delay of reward is also related to the child's social class. As Davis (22, 33) has pointed out, American lower-class children have less opportunity than middle-class children to learn that sacrificing immediate goals in favor of more substantial long-term objectives may be rewarding, and the lower-class child is likely to adopt a philosophy similar to that of his parents: "A bird in the hand is worth two in the bush." The middle-class child's life is more predictable, financially more secure, and long-term goals are more frequently rewarded and encouraged.

These differences in the values of lower- and middle-class parents have obvious implications in superego development. The ability to delay satisfactions and to work for remote objectives is basic for the attainment of many socially valued goals. Middle-class children are more inclined to behave in accordance with long-term "ideal goals," while lower-class children are more apt to respond primarily to immediate rewards.

This point was demonstrated in a study of the goals (137) valued by lower- and upper-class children in grades 4 through 8. Lower-class children stated that they preferred the immediate material rewards of money and other tangible possessions. Upper-middle-class children stated a preference for the long-range goals of fame and power over others (5, 137).

The tendency in lower-class preadolescent children to be attracted by tangible rewards is also characteristic of adolescents (36, 62). Under certain experimental conditions, high-school students from working-class families worked much harder at a task when a monetary reward was the incentive than when no monetary incentive was offered. The middle-class adolescents worked equally hard under both conditions, i.e., money or no money (62).

Still another study of adolescent boys (ages 14-17) revealed that middle-class children believed that planning for the future was worthwhile, whereas lower-class children felt that fate was unpredictable and planning for long-range goals was unwise (129). Moreover, children whose school grades and performances were higher than would be expected from their intelligence test scores (i.e., overachieving students) were more likely to regard planning as valuable than children whose school performances were lower than would be expected from their intelligence. Thus, the overachieving students, who tended to come from middle-class homes, were more apt than lower-class and underachieving students to disagree with questions such as: "Planning only makes a person unhappy since your plans hardly ever work out anyway," "When a man is born, the

success he's going to have is already in the cards so he might as well accept it and not fight against it."

SUMMARY. The values, hobbies, future goals, work habits, and vocational aspirations of children and adolescents are determined, to a surprising degree, by their cultural milieu, social-class membership, family structure, and the characteristics traditionally associated with their sex. The child quickly learns those attitudes and behaviors appropriate for his sex role and traditionally practiced and encouraged by the members of his social class. Once having incorporated these values and behaviors, it is difficult to set them aside. The more firmly they are implanted during the middle-childhood years, the less freedom the child will have to change later on, even if he discovers that other activities and values are better tailored to his skills and personality.

RELATIONS WITH PEERS

The child of school age is confronted with two new socialization agents: teachers and peers. Among most middle-class children there is usually greater similarity between teachers' and parents' values than between those of peers and parents. The adoption of peer-group values will depend on the degree to which the child needs and wants acceptance by age-mates as well as by his identifications with peer heroes. The influence of the school and the teacher will be considered in the next chapter. This section deals with the role of the peer group.

When peers, parents, and teachers are in agreement about the appropriateness of certain values or actions, few problems arise. However, in many cases, the behaviors encouraged by the peer group are in direct opposition to those rewarded by parents and teachers. In these instances, the child will experience conflict. How this conflict is resolved will depend largely on the differential reward value of authority figures and peers. If acceptance by peers is more important than parental acceptance, the child probably will adopt their standards and behaviors.

The peer group also provides an opportunity to learn how to interact with age-mates, how to deal with hostility and dominance, how to relate to a leader, and how to lead others. It also performs a psychotherapeutic function for the child by helping him deal with social problems. Through discussions with peers the child may learn that others share his problems, conflicts, and complex feelings, and this may be reassuring. The discovery that other boys are also angry at their fathers or are concerned with sexuality relieves tension and guilt.

Finally, the peer group helps the child develop a concept of himself. The ways in which peers react to the child, and the bases upon which he is accepted or rejected give him a clearer, and perhaps more realistic, picture of his assets and liabilities.

... it is fair to say that the crucial arena for self-esteem is the arena of one's age-mates. At home there is an age hierarchy. Even the siblings are bigger or smaller, so that differences of competence are expected. The home, moreover, continues to be the source of love and provision of basic wants, even when the child ventures forth to play-ground and school. At home he must be *love-worthy*: this may include being competent but it is heavily weighted on the side of being good, obedient and affectionate. On the play-ground the values are different; he must be *respect-worthy*, able to command respect because he shows competence and handles himself with ease. It is a sharp strain for many children when they pass from the atmosphere of a child-centered home into the competitive realities of even a friendly play group. They must now show what they have in the way of physical prowess, courage, manipulative skill, outgoing friendliness, all in direct comparison with other children of their age. The penalties for failure are humiliation, ridicule, rejection from the group (139, 144-145).

Integration into New Peer Groups

When the child starts school, he quickly discovers that many of his satisfactions are dependent on establishing himself as a member of a peer group. His opportunities for companionship, and his chances of being asked to play favored roles—or even to participate in various play activities—vary with the degree of his acceptance by the group. Furthermore, physical retreat from the peer-group situation is practically impossible now. In the past, if the child failed to enjoy playing with his peers, he could always “pick up his marbles and go home,” but now no such solution is available. Happy or not, he must remain in school.

It is therefore not surprising to find that most children of school age are intensely motivated to gain peer-group acceptance. At the same time, they are rather tentative and cautious in their initial attempts to become group members. A new social situation has a great deal of potential for both reward and punishment. Yet, in most instances, children have little prior knowledge of what will be considered the correct and incorrect responses in the new setting and hence must rely to a great extent on trial and error.

In an attempt to study the process of assimilation into peer society, one team of investigators (104) introduced four 6-and-7-year-old children individually into well-established, “nucleus” play groups of three children their own age. The new child did not know the other children or the experimenter.

They found that the newcomers made real efforts to relate to the nucleus group and to become part of it "on a par with other members." Apparently, most of them had already learned that group activities (being a member of a group) may be very rewarding, and they were therefore eager to play with the others.

In these groups, the new arrival had to take the initiative in interacting with other children. Established members of the group rarely tried to solicit his interests, put him at ease, or take him into account in their activities. The same sort of behavior has often been observed in the schoolroom where "new" children often seek the teacher's aid in dealing with other pupils before they initiate direct social contacts.

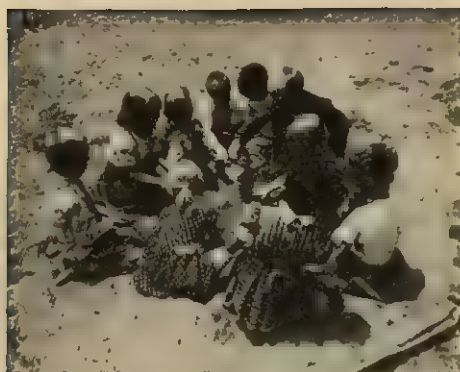
The usual technique of relating to the group consisted of imitating the remarks, actions, and gestures of the most active member. Progress in becoming integrated was gradual and continuous. For example, only 5 percent of the average newcomer's responses during his first meeting with the group were classified as "successful initiation and direction of group activities." Four sessions later, he made almost as many contacts of this type as "nucleus" members did (25 percent of his contacts) (104).

The children who had been together longer knew how to interact successfully, i.e., they had learned the important cues and the responses which were likely to be reinforced by their peers. The new child did not know what behavior would be rewarded by these strangers, and hence was at a tremendous disadvantage. Under the circumstances, he turned to an adult for help, probably because parents or teachers had been helpful in such situations previously. In short, he may have generalized earlier rewarded responses of looking to adults for help. Where this was not possible and where there were no specific instructions, the child's best tactics were to observe the behavior patterns of successful children and to imitate these.

Varieties of Children's Groups

The nature of children's groups varies somewhat with age. During the early years of middle childhood, informal groups, formed by the children themselves, predominate, and the school-age child is likely to refer to "the gang." The gang has few formal rules for governing itself, and there is a rapid turnover in membership. Expediency plays a large role in determining group membership. Factors such as social class, specialized interest, and physical appearance play less of a part than they will in the future.

Later, however, between 10 and 14, there is a tendency for children's groups to become more highly structured. Aspects of formal organization,



The early school years: children of both sexes play freely together.



The middle school years: sex segregation is at its highest.



The high school years: interest in the opposite sex becomes stronger.

FIG. 42. (Photos courtesy of Department of Photography, Ohio State University.)

such as special membership requirements and elaborate rituals for conducting meetings, appear. Even so, the personnel may change frequently and the group itself may not last long. At this time, formal organizations such as the Boy Scouts, Girl Scouts, or Campfire Girls become more important, especially with middle-class children.

Changes in Peer Relations

The group play of children from 7 to 11 years differs in important ways from that of children 5 to 6 years of age. In the earlier period, a boy may play—or fight—with either boys or girls. Their games may be feminine

(e.g., playing house) or masculine (playing ball or building). Beginning at age 7 or 8, however, children begin to associate primarily with same-sex peers. The boys now chase and tease girls, rather than play with them. The boy seeks out other boys and is likely to be embarrassed if he is found alone with a group of girls. From age 9 through 11, there is usually considerable anxiety over associations with girls or revealing any interest in them.

FACTORS AFFECTING PEER ACCEPTANCE AND STATUS

From our discussion thus far, it is apparent that the peer group plays an important role during middle childhood, not simply in providing the child with immediate satisfactions, but in implementing his integration into the broader social world. It can help to train him to become a competent and knowledgeable individual, secure in his sex identifications, and possessed of the interests, attitudes, and skills expected of his sex group. In addition, relationships with peers teach him to work cooperatively toward the achievement of mutually rewarding goals.

When we consider the scope of these functions, we can appreciate the advantages that accrue to the youngster who is accepted by his peers, and the penalties to which the rejected child is subject. It is therefore important to understand both the factors which promote and those which militate against peer-group acceptance. What determines whether a child will be popular in his group, treated indifferently, or avoided by others? On what basis are friendships among children formed? What variables are related to leadership? What are the consequences of high or low social standing in the group?

Social Status with Peers

Several techniques of measurement have been used in studies of the social status of children. In the sociometric approach, youngsters are asked to list their preferences and rejections among the other children of the group with respect to some definite criterion. For example, each child in a camp cabin might be asked to name three children he would like to have as team mates, as swimming buddies, or as neighbors at home. From these data, a composite diagram of all the children's choices, known as a *sociogram*, can be constructed. This shows the relative social status of each child, from the most popular (i.e., most frequently chosen) to the "social isolates" (never chosen).

Bonney (13, 14, 15) used the technique to differentiate socially successful and unsuccessful fourth-grade children in three schools. On the

basis of his classmates' responses to a series of sociometric questions (e.g., whom would you like to serve with on committees?), each child received a composite social acceptance score.

Classmates and teachers rated the 20 most popular (i.e., highest in social acceptance) and 20 least popular children on a battery of 20 personality variables. Popular children were rated much higher in socially aggressive and outgoing characteristics. In general, they manifested either of two personality syndromes (groups of characteristics which go together). The first was composed of strong, positive, aggressive characteristics such as leadership, enthusiasm, and active participation in recitations. The second, which was less definite, involved cheerful disposition and friendly attitudes (tidy, good-looking, frequent laughter, happy, and friendly) (13, 14). By and large, the characteristics associated with popularity showed a great resemblance to those which have been found to be the consequents of gratifying and rewarding early interactions in the family setting.

Personality variables related to popularity have also been investigated by analyzing responses of a large number of first-third-and fifth-grade boys and girls to the Reputation Test (133). In this test, the subject lists the children in his class who "have many friends," are "good sports," "good-looking," etc. Popularity scores (the number of votes received on "Has Many Friends" minus the "Not Many Friends" votes) were then correlated with scores on all other personality variables. Data were analyzed separately for boys and girls in each grade.

Popularity scores were found to be positively correlated with all other favorable personality variables. Popular children in most groups were considered good-looking, friendly, good sports, and best friends. The relationships of other attributes to popularity varied with sex and age. For example, among first-grade girls, popularity was closely associated with the characteristics "acting like a little lady," "being quiet," "not quarrelsome," and "not bossy." The importance of "acting like a little lady" declined as girls grew older, until by the fifth grade this trait had little to do with social prestige. At this age, good looks, good sportsmanship, friendliness, tidiness, and lack of quarrelsomeness were most highly correlated with girls' popularity.

The most highly esteemed first-grade boys were those whom their peers considered good sports, good at games, "real boys," not bashful, and daring. Fairness in play and leadership ability were the most important correlates of popularity among third-grade boys. Prestigious fifth-grade boys received many votes as best friends, good-looking, not

bashful, and "real boy." In this group, friendliness, good sportsmanship, and tidiness were somewhat less closely linked to popularity; characteristics such as "not bossy," "doesn't get mad," "not quarrelsome," and "doesn't fight" had little to do with prestige position (133).

It may be concluded that the responses and characteristics most likely to be rewarded by social acceptance vary according to age and sex. In general, however, the characteristics which conform to the cultural stereotypes of masculine behavior—athletic skills, leadership, and daring—are associated with popularity in boys, while typically feminine characteristics, such as docility and unassertiveness, are associated with popularity in girls. From this, it may be inferred that high prestige with peers is at least partially a product of adequate sex-typing.

Social Class and Peer-Group Status

As we might expect, peer-group status is related to social class. In one study of 63 children in two school classes, social acceptance (as defined by sociometric questions) was found to be highly related to objective measures of family socioeconomic status (11, 14). The child's social-class background was apparently of major importance in determining his social prestige among peers.

Other findings from sociometric studies indicate that lower-class children are more likely to have poor reputations among their peers of all social classes, including their own. They are likely to have few friends and are generally considered poorly dressed, plain-looking, unpopular, aggressive, not liking school, dirty, bad-mannered, unhappy, and unfair in play (13, 14).

Economic factors may partially account for the relatively poor social standing of lower-class children. Poverty may mean poor health, poor clothes, and little participation in social activity. Any of these factors may reduce the child's opportunities for establishing stable peer relationships, and may thus handicap him in learning good social techniques. Moreover, the lower-class child's awareness of his lack of social know-how may produce feelings of inferiority and inadequacy and hence withdrawal from social interactions.

The specific behaviors associated with social status and popularity vary from class to class, because the "ego ideals" for boys and girls differ among the classes. One investigator (108) compared boys and girls from lower- and middle-class families with respect to the clusters of traits they would regard as necessary for a good reputation. The lower-class boys respected two masculine types. The first was the aggressive, belligerent

youngster who had earned the respect of his peers because he was tough and strong. The second included boys who were outgoing and sociable but not overly aggressive. The personality pattern that led to rejection was that of the "sissy" who conformed to the teacher's request and obtained good grades. The lower-class boy who does well in school makes himself vulnerable to alienation from his peers, and hence he may be conflicted over becoming involved in schoolwork.

Lower-class girls were willing to accept the rowdy, verbally aggressive girl who showed a strong interest in boys. However, in contrast to boys, they also respected the friendly, pretty, neat, and studious girl who was not necessarily a leader nor overly interested in the opposite sex. Thus, a lower-class girl could be a good student without alienating her friends.

Middle-class boys accepted boys who were skilled in competitive games but who were neither overly bossy nor blatantly aggressive. Friendly, handsome, and popular boys were also admired, as were good students. As in the lower class, the effeminate and frightened middle-class boy was rejected by his peers. There was only one acceptable stereotype for middle-class girls—that of the pretty, friendly, and vivacious girl. Girls in this class rejected the aggressive, rowdy, and sexually forward girl that some lower-class girls admired. Although there were some class differences, the boys in both social classes rejected the "sissy," and the girls in both classes valued beauty, neatness, and sociability.

The marked social-class differences in attitude toward aggression make lower-class children more receptive to the "heroes" who appear on television, in movies, and in comic books. One investigator (5) obtained data on children's exposure to television, movies, and comic books and their effects on the child. There was a tendency for the boys who were (1) from working-class homes, (2) of lower IQ, and (3) rebelliously independent to adopt the aggressive adventurers of television (Superman, detectives, pirates) as ego-ideal figures. This tendency was less evident among boys who were (1) from white-collar homes, (2) of higher IQ, and (3) less rebellious and independent.

There is much current concern among parents and social scientists over the degree to which the public media influence the habits and long-range goals of growing children. It appears that television and movies can strengthen an attitude (e. g., positive value of aggression) that is already present when the child's background and personality are such as to make him receptive to the attitude communicated by the public media. When the attitudes and values communicated by television or movies conflict with the pre-existing values of the child and his family,

he will be much less influenced by these communication sources. Thus, the heavy emphasis on violence and aggression in movies and on television has its maximum effect on children who already have lowered anxiety over aggression and are predisposed to accept aggressive behavior as generally appropriate. Children from homes that discourage aggression and who, therefore, view it as bad are not likely to have their standards changed by aggressive stories and movies.

Status with Peers and Social Behavior

The child's status among his peers, which depends to a great extent on his personality and class background, strongly affects the course of his socialization. A social psychological study illuminates the relationship between the child's prestige position among his peers and his ability to exercise influence over others as well as his proneness to be influenced by others (107).

The subjects of the investigation were eight groups of boys and eight groups of girls (with seven to nine members each), ages 11 to 15, in a summer camp. Observers recorded all interactions involving attempts to influence others either indirectly or directly (being demanding, using force or threats, pleading, suggesting). They also noted all instances of *behavior contagion*—spreading of behavior—initiated by one of the children, even though the initiator did not communicate any intention to be imitated.

Each child's *group influence* was assessed in terms of frequencies of both initiation of contagion and successful direct attempts to influence others. The frequency of his complicity with the attempts of others at direct influence and the number of contagion incidents he "picked up" were used as measures of susceptibility to social influence. Counselors rated the children on feeling of acceptance in the group, adult relatedness, group relatedness, and group belongingness need. Prestige position was evaluated directly by means of cabinmates' rankings on strength and ability in athletics; independence of adults; having ideas for fun; sex sophistication ("knowing the score"); independence of social pressure.

Status position correlated significantly with ratings on feelings of acceptance in the group, contagion initiation, and successful direct influence attempts. In other words, children who were accorded high status felt more secure and accepted in the group and were able to sway the behavior of others by means of both direct and indirect techniques. Others responded by following their leads, thus rewarding their leadership activities.

Children with status were less likely to accept others' commands and suggestions, but were more susceptible than the average to behavior contagion. Since they were secure in their group, they were free to "pick up" contagion if they wished but could also resist direct attempts at influencing them. Their peers, aware of the high-status children's position in the social hierarchy, more frequently made indirect, rather than direct, approaches to them when attempting to influence their behavior.

By and large, those children to whom prestige position is attributed are aware of the fact; their awareness is facilitated by the behavior of others toward them in a variety of ways including, among other things, a readiness to be influenced either directly or "contagiously." They tend to act on the basis of this awareness by making more direct attempts at influencing, and by other behavior indicative of freedom to act spontaneously in the group (107, 334).

Several inferences may be drawn from these studies of social status among peers. Whether the child has status or not is largely dependent on the social position of his family and on personality characteristics which have their roots in his early development. Other children respond to the child in accordance with his prestige position. For example, as we noted above, the high-status child's outgoing leadership responses are reinforced by his peers' deference toward him and by their imitation of his behavior. Hence responses that originally helped him win popularity gain strength and are repeated and he is likely to maintain his status. Sociometric studies indicate that school children tend to retain their relative prestige positions from one year to the next (12).

Friendships

Of all his peers, the child's close friends are probably his most important "teachers," exerting the most potent and direct influences on his development and behavior. Hence it is important to understand how he selects them.

When asked to name their best friends, children of school age choose others of their own sex almost exclusively (132). This is hardly surprising in view of the sex-segregation characteristic of this period. Propinquity is also an important situational determinant of friendship choice. Most pairs of friends live in the same neighborhood or are in the same classroom at school (44).

Furthermore, personal characteristics appear to play a significant part in the formation of friendships. In one study, data on 62 pairs of boy chums were analyzed to determine the ways in which friends resemble each other (44). Pairs of friends resembled each other most in "developmental age" (a measure of social maturity) and were also somewhat

alike in chronological age, height, weight, and intelligence. The investigator concluded that resemblances in nonintellectual traits are probably more crucial in friendship ties than similarities in intelligence (44).

In a series of studies of grammar school children, mutual and unreciprocated pairs of friends were compared (11, 15). Mutual friendships were those in which two children named each other frequently in response to sociometric questions such as: Who would you like as a partner for a trip to the zoo? In unreciprocated pairs, one child showed attraction for another who practically ignored him.

In general, mutual friendship had little relationship to academic achievement, but mutual friends resembled each other in socioeconomic background and in general intelligence. Only children, who generally came from families of higher socioeconomic status, were more successful in maintaining reciprocal relationships than those from large (four or more children) or medium-sized (two or three children) families. In the lower grades of elementary school, girls appeared to be more sociable than boys. They chose more companions for the suggested activities, and were involved in more mutual friendships (11).

Among fourth-graders, mutual friends tended to possess strong, positive, aggressive personality traits and to be outstanding in leadership and class recitation. In at least half of the pairs of mutual friends, both members were rated above average by their classmates in quietness, tidiness, daring, leadership, friendliness, desirability as companions, good looks, enthusiasm, frequent laughter, and activity in recitations (15).

Apparently, capable, alert, energetic, responsive children are ordinarily attracted to each other. This may be attributed to their ability to understand and satisfy each other's needs. Associations with listless, unresponsive children are not rewarding to them, and they do not generally form friendships with such children. Other children are often attracted to those with more positive traits, but their friendship is usually rejected (15).

In another study, 400 sixth-grade children were asked to list the names of their three best friends, together with their reasons for choosing them (4). Frequent associations (for example: living near by; selling papers together), similarity of interests or tastes (such as reading books together; having the same hobbies), cheerful ("have fun with him"; good-natured), nice and friendly ("nice guy"; "swell girl") were the four most frequent mentioned reasons.

Friendships were quite unstable at this age. A few weeks after the initial lists were made, these subjects were again asked to name their best friends. Sixty percent of the subjects rejected at least one of the

children they had chosen originally, usually giving lack of recent contact ("don't see him very much") or a quarrel as the reason for the changed relationship (4).

The instability of friendships is probably related to rapid fluctuations in interest at this age. Two children with similar interests are likely to form an alliance, for they can understand and satisfy each other's needs, and their relationship is rewarding to both children. However, when interests change, they no longer provide mutual gratifications and their friendship is likely to be discontinued.

With increasing age, interests generally become more crystallized, and as we would expect, friendships become more enduring (63). Persisting mutual interests give a substantial basis for maintaining friendship. Like any other learned behavior, friendship responses are repeated if they are continually reinforced.

SOCIALIZATION FUNCTIONS OF THE PEER GROUP

The peer group obviously provides an opportunity for the child to gain many immediate satisfactions. Here he finds companions who can keep up with his restless energy in a way that tired fathers with aching joints never could. He finds others of his own level of intellectual and social development with whom to talk and to compare notes. He finds the personnel necessary for group sports and games.

It would be a mistake, however, to dismiss the peer group as simply a way of keeping the child happy during this period of his life, for it serves much more extensive purposes in the child's socialization. One of the major functions of the peer group involves changing some of the child's attitudes. The peer group may strengthen existing attitudes, establish new ones, or weaken those that are in conflict with peer-group values. When peer-group values are in conflict with existing attitudes, the child's susceptibility to change will depend on the relative importance of peer acceptance.

There are two reasons why some children might be particularly susceptible to peer-group influences that conflict with parental values. The child who comes from a non-nurturant home atmosphere will be insecure and will have a strong need for acceptance and nurturance by others. In such a case, the child will not be too anxious about disappointing his parents, for they have not been nurturant. If the group will accept the child, he may adopt their values eagerly.

A second antecedent of susceptibility to peers has its effective failure to form a strong same-sex identification with a parent during years 3 to 6. If the child has not made such an identification, he will be looking for substitute models with whom to identify, and he will be motivated to adopt the attitudes of peer-group leaders. Children who will be most likely to resist the peer group's values, if they contradict the parents', are those who view parents as nurturant, are anxious about violating parental standards, and have identified with these adult models.

A recent study of first-grade children supports some of these notions. An adult visited the children's classrooms and showed them pairs of pictures that illustrated unfamiliar objects. The adult then said, "I like this one, you tell me which one you like. Circle the one you like."

The children were then given an incomplete stories test (i.e., the child is given the first part of a story and asked to complete it). The children who chose the same picture that the adult had chosen described the mother role as more nurturant than children who did not base their response on the adult's choice. Moreover, boys who felt that they were not popular with peers were more subject to persuasion than children who felt liked and accepted by peers (85). Apparently, a child who views his parents as accepting and the peer group as rejecting is, as might be expected, most likely to agree with the opinions of adults.

Conformity to Peers

The tendency to adopt the values and attitudes of others (conformity) is a personality variable that varies with age and is of different strength in different children. The special power of the peer group was clearly demonstrated in one study in which children were shown a single, black line (standard) and three black lines of different lengths (reference lines) and asked to state which of the three reference lines was equal in length to the standard (9). When tested alone, most children were accurate in their judgments. Some time after being tested alone, however, each child was placed in the same test situation with eight other peers who were "stooges." The subject was not aware that all the stooges had been instructed ahead of time by the experimenter to report aloud the wrong answer. The child under study was seated in the room so that five of the stooges reported their judgments before the subject did. Under these conditions all children showed an increased tendency to "go along" with the majority and make objectively inaccurate judgments. The younger children (ages 7-10) were more influenced by the incorrect majority than the older children (ages 10-13).

In a second experiment with different children, a teacher served as the "stooge" instead of peers. The teacher first made her judgment aloud, after which the child responded. It was found that these children were less influenced by a single teacher than the first group had been by a group of eight peers. Again, however, the younger children were much more influenced than the older children. The 7-year-old child would say,

"Miss——— is a teacher. She should have it most right" or "My teacher is bigger, she knows. Big people know better."

A 10-year-old boy said,

"I suppose they just look different to different people. She just don't see correctly—bad eyesight."

The results suggest that the child is more susceptible to the opinion of a group of peers than to one important adult but that, with age, susceptibility to both teacher and peers decreases.

INFLUENCE OF THE FAMILY IN MIDDLE CHILDHOOD

Effect of Parental Practices: Acceptance and Rejection

As mentioned earlier, the amount of affection the mother shows toward her child is critical for his development. Moreover, degree of maternal affection appears to be stable over time. According to one study, mothers who were rated as highly affectionate toward their children during the first 3 years (based on observations of mother-child interactions) were also rated as highly accepting and loving when the child was between 9 to 14 years of age (based on an interview with the mother). Maternal restrictiveness of the child was not stable over this ten-year span, suggesting that affection may be a more enduring aspect of the mother-child relationship (118).

One possible reason for this difference is that the restriction imposed on a child of 14 is highly dependent upon how much restriction the child requires. That is, a mother of a mature and self-controlled 14-year-old is apt to decrease her level of restrictiveness if she feels that the child is able to behave appropriately without parental surveillance. A mother of an overly aggressive or impulsive child may become more restrictive than she had been previously in order to curb her child's undesirable behavior. Thus, differences in amount of restriction imposed on a 3-year-old in contrast to a 13-year-old are highly dependent on the type of personality the child has developed. Maternal affection, on the other hand, is less likely to change with the child's personality.

Maternal acceptance is a necessary prerequisite for the effective socialization of the child. Lack of acceptance frustrates the child's need for love and increases his resistance to adopting the rules of the society in which he lives. Thus, one of the most frequent consequences of maternal rejection is a pattern of aggressive and asocial behavior.

Symonds (130) compared the personality characteristics and social adjustments of 31 rejected and 31 accepted children.⁷ Rejected children were those whose mothers and fathers failed to provide adequate care, protection, or affection. The two groups were carefully matched in sex, age, school grade, socioeconomic background, and intellectual level. Although the subjects ranged from 5 to 23 years in age, the average was 12.5, and the majority were of grammar school age. Experienced raters, familiar with the subjects and their families, filled out check lists dealing with the child's behavior, personality traits, and neurotic attitudes, as well as with his parents' adjustments.

Children in the accepted group showed more socially acceptable behavior and appeared more cooperative, friendly, honest, emotionally stable, deliberate, and cheerful. Children in the rejected group, on the other hand, were more often rated as emotionally unstable, restless, overactive, and given to attention-getting behavior. In general, they were more resentful of authority, including their parents, and more rebellious against society's rules and regulations. They manifested pronounced delinquent trends, frequently lying, truanting, running away from home, stealing and quarreling.

No two children encounter "rejection" of quite the same quality or quantity, and none react to it in exactly the same way. Thus no two cases of rejection will present the same picture clinically. The child in the following case illustration, for example, undoubtedly would have reacted quite differently had her parents' rejection involved disinterest, actual neglect, or cruelty (21). Nevertheless, it serves as a living example of the way in which one child reacted to a particular form of perceived rejection.

⁷ It should be pointed out that Symonds' work has one major methodological disadvantage. Since child and parent ratings were both made by the same investigator, they are not independent of one another. It is possible, for example, that if the investigator found the parent to be rejecting, he might tend to be selective in his perceptions of the child. That is, he might be inclined to see in the child only the personality characteristics he associates with rejection, neglecting to observe those which may be inconsistent with his notions of the consequences of rejection. Despite this source of possible bias, the findings are highly suggestive, and seem to agree quite well with other, less intensive studies, and with the impressions of clinical workers.

Priscilla was about 14 when the climax of her difficulties was reached. From year to year she had become more stubborn and withdrawn. In school she sat with an air of complete detachment. Although of superior intelligence, her work was inadequate and often incomplete. She had few friends and participated in no social activity. Often she would give no reply to any questions and would sit biting her nails and staring truculently at people.

Priscilla was a graceful and attractive child who, had she been dressed in becoming clothes, might have been unusually charming. She had a small, sensitive face, but usually she had a hard and hostile expression. She seemed completely inaccessible and nobody really understood her.

Priscilla's parents were essentially well meaning, but completely lacked understanding. The father was a minister, the mother a former teacher. Both parents were educated and conscientious in their approach to life. They were sensitive, had high standards of duties and obligations, considered good manners and proper behavior important, and devoted themselves unselfishly to the upbringing of their two children, in whom they tried to instill their principles.

In spite of all these virtues, these parents were damaging to their daughter. Priscilla was a timid and fearful little girl who craved warmth and closeness which she never obtained, since both parents were rather distant. When at two years of age, Priscilla had a little brother who, different from the family pattern, was a gay and jolly baby, delighting his parents and everyone else with his cuteness, Priscilla felt utterly rejected and withdrew into a shell.

There is no doubt that her mother gave her much reason to feel that the brother was preferred. For one thing, mother lacked understanding to such a degree that, following her moral principles, she demanded that the defeated little daughter enjoy the baby as much as she did and later share things with him and not be jealous.

The unhappiness in which Priscilla lived, feeling rejected and also condemned for her jealousy, was increased by her unhappy school experiences. Priscilla went to school feeling that all the other children were happy and loved. Her feeling of isolation increased as she became aware of the awkwardness of her clothing. Her mother believed in practical, homemade dresses. Neither parent believed in vanities. Thus Priscilla always wore too-large, bulky dresses which the other children sometimes ridiculed.

Sullenness and a negative, stubborn antagonism toward the whole world became the mask beneath which Priscilla hid her hurt feelings. Her work was poor, although her intelligence was high. She had no friends. Her parents felt completely bewildered and outraged at their daughter's behavior. They tried everything they could think of—they admonished, scolded, punished, but to no avail. At twelve, Priscilla was fairly embittered, withdrawn, lonely, and unhappy (21, 132).

In the following case, the parental rejection is more readily apparent.

Connie is one of the rare cases in which a mother admitted being "not particularly fond of her child." The mother has "no use for women." She is frankly partial to her son, yet believes that she does not show this partiality. Connie is

unfortunate enough to adore her mother. She is unhappy when she makes her mother unhappy. She retaliates by mistreating her brother.

Connie is unpopular in school. She says "A silliness gets into me, then I tickle the girls and pester them. I know I am not very well liked."

She does not know how to act with children, and in her insecurity she becomes aggressive. The baseball team is angry with her because she ruins their games.

She feels her mother does not understand her. Often she must lie because she is afraid of her mother scolding her or her father spanking her. She has no advocate (21, 135).

The capacity of a mother to give love to a child is related, in large measure, to her personality structure. If she is unhappy and frustrated, it will be more difficult for her to be tolerant and accepting of her child's demands for attention and love.

Investigators analyzed extensive case history data on 25 behavior problem and neurotic children and showed that almost all of them (23) had been rejected by their mothers and most (16) by their fathers. In 16 cases, the children had been unwanted from the start and their mothers spoke of them as "bad from the beginning" (41).

None of the mothers was a "well-integrated" individual; all of them had been diagnosed as aggressive, submissive, or infantile. Only two of the fathers in the group were judged to be emotionally stable. There were no "healthy" mother-child relationships in the group, but five fathers had good relationships with their children. The most common type of parent-child relationship was a combination of lack of love and over-restriction.

The mothers' problems and unfavorable attitudes toward children were based on their backgrounds, which revealed a "general picture of weakness and unhappiness." Only two of the mothers expressed feelings of satisfaction about their own childhoods. The rest felt unhappy, unloved, and thwarted during that period.

The fathers had experienced somewhat more stable and satisfying childhoods, but on the whole, they too were immature and poorly prepared for adult relationships. In view of these factors, it is hardly surprising that in 17 of the 25 cases, one or both of the parents were dissatisfied with their marriage.

The parents' personalities, problems, and conflicts probably rendered them unable or unwilling to accept the responsibilities of parenthood. Consequently, they rejected their children and maintained only erratic or overcontrolling relationships with them (41).

In a related study, 75 rejected children, patients at a psychiatric clinic,

were compared with a control group of normal children who presumably had not been rejected by their parents (102, 103). The groups were matched in average family size and ordinal position in the family. The rejected children were those whose mothers never wanted the children, or were predominantly hostile, severely punitive, indifferent, irritable, threatening, or suspicious in their relationships with them.

Analysis of the psychiatric social history and psychiatric interview data revealed that marital discord was much more common among the parents of the rejected children. For example, over half of the parents expressed disappointment with their mates and reported frequent quarrels, while only a small number of the controls' parents had such complaints. Maladjusted parents, lack of affection, broken homes, and cruelty of the husband were much more prevalent in the families of the rejected children. Over 30 percent of these children, but only 5 percent of the controls, had at least one parent who was neurotic, psychopathic, or psychotic. Unhappy childhoods and broken homes were important features of the backgrounds of many parents of rejected children, but relatively few parents of the controls.

In dealing with their children, the majority of the rejecting fathers were hostile, while 66 percent of the rejecting mothers were ambivalent, i.e., alternated between protective and hostile treatment. None of the rejecting mothers and only 9 percent of the rejecting fathers had "constructive" relationships with their children. On the other hand, fewer than 10 percent of the parents of the control group treated their children aggressively or inconsistently. The vast majority of them were judged to be "constructive" in parent-child relations.

All the rejected children were emotionally unstable and in need of psychological treatment. In contrast to this, almost all the children who were handled "constructively" were described as emotionally stable and popular, friendly, and obedient in school. On the basis of all these findings, the author concludes that rejection is

. . . primarily due to the mother's unhappy adjustment to marriage. This is usually the result of immaturity and emotional instability on the part of one or both parents. The mother's handling is frequently inconsistent, wavering between over-protective and hostile behavior. The children in turn showed mixtures of aggressive (quarreling, truancy, stealing), anti-social, as well as submissive, neurotic symptoms. Aggressive behavior occurred more frequently when parental handling was consistently hostile, submission when parental handling was consistently protective. The control group showed striking correspondence between constructive parental handling and stable behavior on the part of the children (103, 586).

It may be concluded from both of the above studies that a child's maladjustment frequently has its roots in unfavorable parental behavior and attitudes. These, in turn, may generally be traced back to the parents' own developmental histories, and consequently, their personalities.

It may be inferred that in unhappy, tense homes characterized by marital discord, children endure many upsets and frustrations, but few satisfying experiences. In many cases, their needs are probably satisfied only through such extreme behavior as violent aggression, complete submission, or neurotic symptoms. Under the circumstances, immature, socially maladaptive behavior is directly rewarded and learned. Also, in so far as these children identify with their parents, they probably adopt some of these adults' maladaptive and socially inadequate behavior. Children's neurotic symptoms and behavior problems may thus be interpreted as consequents of the home environment, or more specifically, lack of emotional warmth, healthy parent-child relationships, and good identification models. As we shall see in greater detail in Chapter 14, these home variables may also be important antecedents of delinquent behavior.

Influence of Family on Development of Psychosomatic Symptoms

Psychosomatic symptoms may also be associated with maternal rejection during the early years. A psychosomatic symptom indicates a bodily disease or disorder in function that is determined, in part, by psychological disturbance. Although a constitutional predisposition to a psychosomatic disorder is important, psychological factors often act to precipitate the disorder. Some of the common psychosomatic disorders of middle childhood include asthma, ulcerative colitis, skin disorders, and rheumatoid arthritis.

In a recent study, mothers of children (ages 6-12) with psychosomatic disorders (mainly asthma, rheumatoid arthritis, and ulcerative colitis) were compared with mothers of children with purely physical ailments (poliomyelitis, heart malfunction, blood disorders) and mothers of neurotic children (frequent aggression, anxiety attacks). Interviews with the mothers revealed that those of the psychosomatic group were less accepting and more controlling during their children's first year of life than the mothers of the physically ill or neurotic children. The mothers also told stories in response to pictures showing mothers and infants. The stories of mothers of the psychosomatic and neurotic children indicated that these mothers were probably less accepting and more controlling than the mothers of the physically ill children (45).

were compared with a control group of normal children who presumably had not been rejected by their parents (102, 103). The groups were matched in average family size and ordinal position in the family. The rejected children were those whose mothers never wanted the children, or were predominantly hostile, severely punitive, indifferent, irritable, threatening, or suspicious in their relationships with them.

Analysis of the psychiatric social history and psychiatric interview data revealed that marital discord was much more common among the parents of the rejected children. For example, over half of the parents expressed disappointment with their mates and reported frequent quarrels, while only a small number of the controls' parents had such complaints. Maladjusted parents, lack of affection, broken homes, and cruelty of the husband were much more prevalent in the families of the rejected children. Over 30 percent of these children, but only 5 percent of the controls, had at least one parent who was neurotic, psychopathic, or psychotic. Unhappy childhoods and broken homes were important features of the backgrounds of many parents of rejected children, but relatively few parents of the controls.

In dealing with their children, the majority of the rejecting fathers were hostile, while 66 percent of the rejecting mothers were ambivalent, i.e., alternated between protective and hostile treatment. None of the rejecting mothers and only 9 percent of the rejecting fathers had "constructive" relationships with their children. On the other hand, fewer than 10 percent of the parents of the control group treated their children aggressively or inconsistently. The vast majority of them were judged to be "constructive" in parent-child relations.

All the rejected children were emotionally unstable and in need of psychological treatment. In contrast to this, almost all the children who were handled "constructively" were described as emotionally stable and popular, friendly, and obedient in school. On the basis of all these findings, the author concludes that rejection is

... primarily due to the mother's unhappy adjustment to marriage. This is usually the result of immaturity and emotional instability on the part of one or both parents. The mother's handling is frequently inconsistent, wavering between over-protective and hostile behavior. The children in turn showed mixtures of aggressive (quarreling, truancy, stealing), anti-social, as well as submissive, neurotic symptoms. Aggressive behavior occurred more frequently when parental handling was consistently hostile, submission when parental handling was consistently protective. The control group showed striking correspondence between constructive parental handling and stable behavior on the part of the children (103, 586).

It may be concluded from both of the above studies that a child's maladjustment frequently has its roots in unfavorable parental behavior and attitudes. These, in turn, may generally be traced back to the parents' own developmental histories, and consequently, their personalities.

It may be inferred that in unhappy, tense homes characterized by marital discord, children endure many upsets and frustrations, but few satisfying experiences. In many cases, their needs are probably satisfied only through such extreme behavior as violent aggression, complete submission, or neurotic symptoms. Under the circumstances, immature, socially maladaptive behavior is directly rewarded and learned. Also, in so far as these children identify with their parents, they probably adopt some of these adults' maladaptive and socially inadequate behavior. Children's neurotic symptoms and behavior problems may thus be interpreted as consequents of the home environment, or more specifically, lack of emotional warmth, healthy parent-child relationships, and good identification models. As we shall see in greater detail in Chapter 14, these home variables may also be important antecedents of delinquent behavior.

Influence of Family on Development of Psychosomatic Symptoms

Psychosomatic symptoms may also be associated with maternal rejection during the early years. A psychosomatic symptom indicates a bodily disease or disorder in function that is determined, in part, by psychological disturbance. Although a constitutional predisposition to a psychosomatic disorder is important, psychological factors often act to precipitate the disorder. Some of the common psychosomatic disorders of middle childhood include asthma, ulcerative colitis, skin disorders, and rheumatoid arthritis.

In a recent study, mothers of children (ages 8-12) with psychosomatic disorders (mainly asthma, rheumatoid arthritis, and ulcerative colitis) were compared with mothers of children with purely physical ailments (poliomyelitis, heart malfunction, blood disorders) and mothers of neurotic children (frequent aggression, anxiety attacks). Interviews with the mothers revealed that those of the psychosomatic group were less accepting and more controlling during their children's first year of life than the mothers of the physically ill or neurotic children. The mothers also told stories in response to pictures showing mothers and infants. The stories of mothers of the psychosomatic and neurotic children indicated that these mothers were probably less accepting and more controlling than the mothers of the physically ill children (45).

In another study (92) it was found that children with allergies (hay fever, asthma, skin disorders) were not likely to express aggression overtly and directly, indicating high anxiety over this behavior. Parents of allergic children are often inconsistent in their giving of nurturance; they are giving at one moment and rejecting at another. The child is, therefore, never quite sure about the reliability of parental love. This condition leads to strong hostility toward the parent, but the child is afraid to express his anger because he fears complete rejection and loss of love. This combination of high anxiety over loss of love and high conflict over expressing resentment toward the parents produces states of tension which may precipitate a variety of psychological symptoms. The specific symptom that occurs is a function of the past history of the child and his constitutional make-up.

SUMMARY. Most parents display behaviors that are both accepting and rejecting of the child—the balance usually favoring acceptance. When rejection is moderate, the child is likely to become continually anxious over loss of parental love, and the subsequent tension may precipitate psychological symptoms (aggression, psychosomatic ills). We do not know whether differences in degree of rejection, constitutional differences among children, or a host of other unknown environmental factors are responsible for the fact that one rejected child develops asthma while another becomes hostile and overtly aggressive. At present we can describe mothers only in general terms, as either generally accepting or generally rejecting. As methodology improves, measurement of maternal behavior will become more refined and we may be able to make more definite statements about the relation between degree of maternal rejection and a child's subsequent behavior. The most accurate statement that can be made on the basis of present knowledge is that children of rejecting mothers, in contrast to those of accepting mothers, are more likely to develop behaviors that interfere with a smooth adjustment to school, peers, and other adults.

Effect of Parental Practices: Restriction and Permissiveness

A second class of maternal behavior, which is relatively independent of maternal acceptance, involves the degree of restrictiveness and control the mother imposes upon her child's behavior. An overly restrictive mother frustrates her child's desire for autonomous action and, for that reason, is apt to generate hostility in her child. Second, curbing the child's freedom may lead him to develop feelings of inadequacy, for exploration of the environment and testing of strength and skills against

environmental challenges are essential for the development of self-confidence. Excessive restriction might be expected to lead to timidity and shyness in the child.

Using techniques similar to those employed in his study of acceptance and rejection, Symonds (130) compared the consequents of parental domination or submission upon children's personality structures. The subjects were 28 pairs of children, between 6 and 17 years of age, matched as in the other study. One member of each pair was the child of "dominating parents," the other of "submissive parents."

By dominating parents is meant those who exercise a great deal of control over the child by being very strict and authoritative with him, who punish the child or threaten punishment, who are hard on the child and hold him to standards which are not suited to his age and development, who criticize a child, who unnecessarily frighten the child, who plan extensively for him, or, in some cases, who care for the child's needs to an unusual degree and give him unnecessary toys or advantages or special privileges (130, 105).

By submissive parents is meant those who permit the child a great deal of freedom, allow themselves to be dominated by the child and accede to the child's demands and wishes, who indulge the child and cannot refuse his requests, or on the other hand, who desert him or neglect the child, who do not give him proper training and leave him too much to his own resources (130, 108).

It should be noted that these "dominating parents" resemble the parents from Baldwin's "authoritarian home atmosphere," while part of the definition of "submissive parents" parallels Levy's description of overprotective, indulgent mothers.

Like Baldwin's nursery school subjects from "authoritarian control" homes, the children of "dominating parents" tended to be polite, inhibited, careful, dependable, but submissive, docile, shy, and self-conscious. As might be anticipated, they had greater difficulty in self-expression, and suffered more from feelings of inferiority, insecurity, and bewilderment than children who had more freedom (130).

The behaviors rewarded in dominating homes—submission to others, carrying out instructions faithfully, inhibition of aggression—were transferred to other social situations. Hence, these children appeared to be highly socialized and to have strong superegos—achieved, however, at the cost of freedom of expression and spontaneity.

Children of "submissive parents," on the other hand, were rated as more disobedient, irresponsible, stubborn, rebellious against authority, and antagonistic; however, they were seen as self-confident and spontan-

eous in forming friendships outside the family (130). These children had been rewarded for expressing their feelings freely and for making their needs and desires known. They had not learned to be obedient or submissive or to take responsibility at home; hence, they did not appear to be highly conforming or socialized in the wider community.


In a recent study (7) 32 families with problem children (ages 6-12) were compared with 25 families with normal children. The parents in both groups filled out a Personality Inventory and were interviewed. The results revealed that fathers who were highly restrictive, overly controlling, and thwarting of the child's attempts at autonomy had children who were excessively shy and timid.

In recapitulation, it can be said that there is some support for the belief that excessive parental restrictiveness produces feelings of inadequacy and timidity in the child. Parental permissiveness, on the other hand, is associated with more assertive and spontaneous behavior. However, excessive permissiveness toward aggression, as noted in Chapter 9, may lead to frequent aggressive behavior. The effect of maternal restrictiveness depends on the specific behaviors that are restricted and the amount of love and acceptance in the parent-child relationship. A combination of love and granting of autonomy is more likely to lead to healthy socialization; the granting of autonomy in a context of rejection is more apt to lead to excessive asocial aggression in the child.

The Child's Perceptions of Parental Rejection and Restriction

Thus far we have considered primarily the influences of parent-child relationships on children's overt behavior and emotional disturbances. We have not discussed the child's perceptions of his parents and his feelings, needs, emotions, and attitudes; yet these are obviously of crucial importance. Are children aware of parental rejection and hostility? Do rejected children feel unwanted, unloved, unworthy, or unjustly punished? How do they regard themselves and their parents?

In order to examine these problems systematically, Jackson, a British psychologist, studied 70 maladjusted children—30 neurotics and 40 delinquents—and a control group of 40 normals (64, 65). Each subject told a story in response to each of six drawings depicting various kinds of family relationships (dependence on mother, exclusion from intimacy between parents, jealousy of siblings, disobedience, loneliness and guilt, fear of aggression, threats of punishment). Some of the subjects' ideas about himself, his family, and society in general were inferred from his responses to the test.



The maladjusted children's self-perceptions and attitudes differed markedly from those of normal children. In their stories, the normals generally described themselves (i.e., their heroes) as "good" or "nice," while the delinquent and neurotic children perceived themselves as naughty and disobedient. Emotionally stable youngsters were realistic enough to recognize that they misbehaved sometimes but did not feel that they were subjected to cruel or excessive punishments. They saw their parents as fond and accepting, giving them help and protection.

Neurotic and delinquent subjects, on the other hand, felt that their parents disliked, rejected, and maltreated them, and administered unjust punishment for their misdeeds. As would be anticipated on the basis of the principle of generalization, the maladjusted children viewed strangers with fear and mistrust, while the normal children saw others as generally good and kindly.

The neurotic children reacted to the injustices they felt they had suffered. They were hostile and rejecting of their parents, intensely jealous of their siblings, and fearful of aggression from older, more powerful brothers and sisters.

The delinquents did not show as much hatred of parents and siblings or so much anxiety or self-pity as the neurotics. The author points out that these children felt detached and "not belonging." Consequently, they were less emotionally involved with their families, and repressed all strong feelings about them (64, 65).

Another investigator studied the response of boys 6 to 10 years of age to pictures and to direct questions (70). There was a positive association between fighting among peers (as rated by teachers) and a description of the parents as hostile and nonnurturant. Boys who described their mothers as nurturant were much less aggressive with peers. This finding supports the hypothesis that the socialization of aggression depends upon the child's desire to please his parents and his mild anxiety over loss of parental love. If the child sees the parent primarily as rejecting, he will be less motivated to inhibit aggressive behavior.

Clearly, the influences of healthy and unhealthy parent-child relationships are reflected in the child's attitudes toward himself and toward his family, as well as in his overt behavior. The child who is punished and rejected appears to be keenly aware of his parents' attitudes toward him. Moreover, he begins to view himself as unwanted and unworthy; that is, he begins to adopt his parents' attitudes toward him. Under these conditions, his behavior is likely to be maladaptive.

Social-Class Differences in the Mother-Child Relationship

Although the extrafamilial environment (teachers and peers) exerts a strong influence on the motives and behaviors of the school-age child, the attitudes and practices of the family are still of major significance. The models that the parents present to the child, and the pattern of rewards and punishments they exercise are determined, in large measure, by two sets of factors: the unique personalities of the parents and the values of the social-class setting in which the family lives. Every family belongs to a number of subcultural groups (racial, religious, social class). Members of these groups share many attributes and differ in many ways from the members of other groups. In Chapters 6 and 7 we reviewed studies indicating that middle- and lower-class families differ in their infant and child training practices.

Subcultural influences continue to be effective during middle childhood. Within any particular community, parents of a particular class usually join the same clubs, have similar interests and attitudes, band together against outsiders from other classes, and work together at the same kinds of jobs. Consequently, their ideas about acceptable and unacceptable behavior, including the techniques of child-rearing and discipline, are usually much alike (135). For example, physical punishment of children is more often condoned among lower-class than among middle-class parents (93) and, therefore, is used more frequently. The reward of artistic interests, on the other hand, is more frequent among middle- than among lower-class families. Honesty, however, is less clearly related to social-class values, being rewarded in all social-class groups. The child's tendency to adopt honesty as a value is, therefore, more dependent upon the degree of honesty displayed by the same-sex parent (identification) and the parental encouragement of this behavior (reward) than upon his social-class membership.

Social-Class Differences in Child-Rearing Practices

Child behavior which is encouraged and rewarded by one social class may be disapproved and punished by another. Through an intricate system of selective rewards and punishments, parents teach their children the responses, values, and beliefs appropriate for their own social class.

Class training of the child ranges all the way from the control of the manner and ritual by which he eats his food to the control of his choice of playmates and of his educational and occupational goals. The times and places for his recreation, the chores required of him by his family, the rooms and articles in the house which he may use, the wearing of certain clothes at certain times, the amount of studying required of him, the economic control to which he is

subjected by his parents, indeed his very conceptions of right and wrong, all vary according to the social class of the child in question (33, 609).

Most of the evidence indicates that middle-class mothers are more affectionate and less punitive than those of the lower classes. For example, interviews of 198 white, upper-middle- and 178 upper-lower-class mothers of kindergarten children indicated that upper-middle-class mothers "are somewhat warmer and more demonstrative . . . than upper-lower mothers" (68, 395). Moreover, "upper-lower parents employed physical punishment, deprivation of privileges, and ridicule as techniques of controlling their children more commonly than do upper-middle parents. It appears likely that the upper-middle parents used reasoning and praise more often. . . ." (86, 395). These findings were corroborated by another investigation (6) in which lower-middle-class mothers were found to be less affectionate and more punitive and restricting than upper-middle-class mothers. Still another investigation of the mothers of preadolescent boys (93) found that lower-class mothers were more likely than middle-class mothers of similar ethnic and regional background to lose their temper and employ physical punishment. Clearly the basic maternal dimensions of love-hostility and restrictiveness-permissiveness are associated with the social class of the mother. Differences in personality among children of different classes are no doubt related to these differences in child-rearing practices.

Class Differences in Children's Attitudes to Parents

If the findings of these studies are valid, lower-class children would be expected to perceive their parents' disciplinary procedures as harsh and punitive, while those in the middle-class should see their parents as more lenient. Several investigations indicate that this is so. In one study, two groups of 21 fifth-grade children, one lower-class and one upper-middle-class, were asked to write compositions concerning a 10-year-old boy's reactions to his younger brother's misbehavior and interference. It was assumed that through the medium of the story, the child would reveal his perceptions of his parents' disciplinary procedures (34).

Twice as many lower- as middle-class children wrote stories involving nonconstructive solutions to the problem (e.g., appealing to authority). The vast majority of the solutions suggested by the higher social-class group, but only half of those given by the lower-class children, were constructive, amicable settlements. In general, children of low socioeconomic status were more inclined to use punishment and to avenge misdeeds.

Each subject in this study was also interviewed privately and asked ten questions relating to routine discipline problems in school, at home, or in the neighborhood (e.g., Should children ever talk back to their parents?). The socioeconomically more favored children revealed positive attitudes toward their parents' treatment and toward authority in general. Lower-class children viewed authority, including their parents, as unreasonable and severe. Hence they revealed more rigid compliance and greater fear of deviating from fixed rules and regulations (34).

Somewhat similar results were obtained in another study of the influences of social-class variations in discipline procedures on children's attitudes toward parents. The subjects, three groups of 50 children each in Grades 5 to 8, were drawn from three schools representing upper-, middle-, and lower-class economic levels. Each child was seen individually, and after good rapport had been established, he was asked to speak out the first ten ideas (associations) that came to him when he thought of his mother and father. These data were analyzed to determine children's notions and descriptions of their parents; nature and degree of attachment and dependence; feeling tone, and degree of repression or expressiveness (90).

Although there was great variability in each group, children of different economic levels generally revealed fairly distinct attitudes toward their parents. For example, as a group, middle-class children manifested pleasant feelings, accepting and respecting their parents whom they regarded as helpful and permissive. Few of these children appeared to be overly dependent or hostile to their parents.

Lower-class children, on the other hand, had the greatest number of unfavorable reactions. Of the three groups, they were the most ambivalent (had mixed love and hostility) toward the parents and were the most insecure. Although they had relatively few feelings of rejection or overdependence, they felt that their parents were generally repressive and gave them little companionship. The upper-class group was the most variable, but as a group, they expressed the most severe feelings of rejection and overdependency. Hostility was less common in this group than among the lower-class subjects, but adoration, together with fear and guilt, were more prevalent.

Influence of Siblings

Although the personalities of the parents and their behavior toward the child are of primary importance in shaping his development, the child's relationship with his siblings, if he has any, may also exert some influence on the development of his personality.

More than 80 percent of American children have siblings. In the child's interactions with them, he may learn patterns of loyalty, helpfulness, and protection; or of conflict, domination, and competition, and these may be generalized to other social relationships. The number of siblings a child has and his relationship to them constitute an important aspect of the child's learning situation, and hence may strongly affect what and how the child learns at home. A number of systematic studies have been concerned with the consequences of ordinal position (oldest, youngest, middle child), and "onliness" on the personality and behavior of the school-age child.

The social learning situation encountered by the first-born child obviously differs from that of his younger siblings. For example, oldest children may be handicapped by the relative inexperience of their parents. They may be overstrained or pushed too hard to accomplish, or they may have to care for younger children before they are ready for such responsibility. They alone must face the difficult adjustment involved in losing "only child" status.

Youngest children, on the other hand, are more likely to be babied by parents, but to compete vigorously with older siblings for the satisfaction of their own needs. They are more likely to be bossed and punished by older siblings, but have the advantage over other siblings of never having to adjust to the competition of a newly arrived younger sibling. For reasons such as these we might predict that there would be personality differences related to ordinal position in the family.

Research studies of the problem show general agreement that oldest children are likely to be less aggressive and more prone to feelings of guilt than their peers (27, 49, 75, 119). Moreover, at least two independent studies show that there are disproportionately large numbers of first-born children among the patients at child guidance clinics (116, 141). Surveys of elementary-school children also indicate that oldest children manifest more nervous symptoms than either intermediate or youngest children (40, 75, 131).

Among normal school children, first-born boys seem to have more problems involving anxiety, withdrawal, mood swings, and oversensitiveness; second-born boys have more overt competitive and aggressive patterns (40, 75, 89, 131). On the average, youngest children seem to present a sharply contrasting picture. Compared with other children, they appear to be highly striving (75, 114) and more defiant (27). Middle children are generally socially gregarious, rather easily influenced by suggestion, and eager for physical demonstrations of affection (15).

The results of a comprehensive study by Koch of the effects of ordinal

position, sex, and spacing of siblings on personality development support the less systematic findings summarized above. In this study (77, 78, 79), there were 384 subjects (ages 5 to 6), from two-children families. The four types of sibling combinations (older boy—younger girl; older girl—younger boy; two sisters; and two brothers) were equally represented, and there were groups of siblings separated by one to two years, two to four years, and four to six years. Teachers of these children observed and rated the children on a variety of traits. All of the major variables—sex, ordinal position, and spacing of the sibling—influenced the child's personality, with the sex of the sibling being one of the most important determinants of the adoption of sex-typed behaviors.

SEX OF SIBLING. In general, children with brothers had more masculine traits than children with sisters. The girls with brothers, as compared to the girls with sisters, were more ambitious, more aggressive, and did better on tests of intellectual ability. Girls with older brothers had more "tomboyish" traits than girls with older sisters. Boys with older sisters were less aggressive and less daring than boys with older brothers. These results would be expected from our knowledge of the identification process and the imitation that occurs between siblings. In many cases, the older sibling is viewed by the younger as stronger, more competent, and in control of important goals that the younger one wants but does not yet possess. The older child can stay up later, eat adult foods, and may even be perceived as the family favorite. The younger sibling would strive, therefore, to become similar to the older by attempting to adopt the latter's behaviors.

ORDINAL POSITION. First-born children tend to have stronger consciences than second-borns; they tend to be more responsible, less aggressive, and more intellectually curious. However, the effect of ordinal position is very much dependent on the sex of the siblings and the spacing between them. When siblings were of the same sex and separated by less than two years, there were few differences between them. When the spacing increased to four years or the sibs were of opposite sex, behavioral differences between them were more marked. For example, if a boy had a brother four years younger, he was less aggressive and more responsible than a boy with a sister four years younger than himself.

SPACING. Koch feels that a two-to four-year difference between siblings is the most threatening to the older child. If the first-born child is 3 years old when the new baby arrives, he is apt to become anxious over possible loss of nurturance. If the first-born is only a year old when the new sib arrives, his self-image is still so diffuse and unclear that he will

probably not regard the baby as a major threat or competitor for his mother's affection. If the older child is 7 or 8 when the new sibling arrives, he is much more independent of his parents and is less threatened by the newcomer in the family. Moreover, the older child in this case is more likely than a sibling only two years older to become a hero figure or identification model for the younger child.

Apparently sex, ordinal position, and spacing all interact in influencing the child's development. It is difficult to speak of the influence of ordinal position without taking into account the other two variables.

SOURCES OF ANXIETY AND CONFLICT IN MIDDLE CHILDHOOD

The Establishment of a Conscience and Moral Standards

One of the major sources of anxiety during this period involves apprehension over possible loss of nurturance (i.e., rejection, alienation) from parents, teachers, and peers. Because the child wants to retain these sources of affection, he adopts the values and behaviors that will bring approval from these groups. These values make up the conscience of the child, the beginning stages of which were described in Chapter 9.

Middle childhood represents a critical period during which the conscience is growing at its most rapid rate. Unless standards of right and wrong are established at this time, the child is apt to yield to asocial temptations offered by others or to his own urges for uncontrolled aggressive, sexual, and regressive behavior. On the other hand, if the learning of standards and prohibitions (superego development) is unduly strong, guilt will develop in association with a wide variety of behaviors and thoughts. Since guilt is unpleasant, the child will develop defenses to prevent the commission of prohibited behavior and to keep guilt-arousing thoughts and behaviors from coming into consciousness. That is, if the child is afraid that he will be rejected or feel guilty for having sexual or aggressive thoughts, he may attempt to repress or deny these anxiety-arousing and guilt-provoking thoughts. Sometimes these defenses lead to symptoms (irrational fears, stuttering, psychosomatic ills, rituals, obsessive thoughts, tics). Excessive guilt over aggressive thoughts, masturbation, sexual curiosity, jealousy toward a sibling are not uncommon in the child of school age and may cause symptoms that interfere with effective functioning.

The combination of parental love plus severe restriction and punishment of prohibited behaviors appears to be the most common antecedent

of a strict conscience. Under these circumstances the child adopts the parents' excessive prohibitions on aggressive and sexual behavior because he wants to retain their love. In such cases, occasional temptations to lie, to hit, or to masturbate may produce a constant state of tension and guilt and an increased probability of symptom formation. Wise parents must find the optimal balance between complete permissiveness, which may lead to the development of a weak conscience, and excessive prohibitions that produce an unrealistically severe set of moral standards.

Fears of the School-Age Child

The importance of fears (i.e., sources of anxiety) in the mental life of the 10-year-old child is seen in a study (38) in which children were asked to draw the most important events in their lives. Almost one-third of the drawings illustrated fear experiences. Although many childhood fears are a function of direct experience with frightening events (being bitten by a dog, being hit by a car) or a product of parental warnings about certain objects (stay away from the fire, watch out for snakes), there are also many fears that are symbolic in nature. The work of Jersild, Markey, and Jersild (68) revealed that many of the fears held by children (about 20 percent) are unrealistic and deal with imaginary creatures, the dark, and being alone. Dangerous animals, like lions and tigers, are also frequently named as objects of fear. Dunlop (35) asked a group of children, ages 9-12, about the things they feared and the intensity of their fears of specific objects. Feared objects were classified as realistic (i.e., could have happened to the child), remote, unrealistic, or mystical. The fear of falling off a ladder is possible, realistic, and in the child's immediate experience. The fear that a ghost or lion will hurt the child is remote and unrealistic. The children tended to be only *moderately* afraid of immediate and possible dangers (i.e., getting hit by a car) but was *strongly* afraid of remote or impossible events (lion attack, ghosts). The remote fears of ghosts, lions, witches, which usually involve being seriously hurt or killed, may be symbolic substitutes of feared parental punishment.

Let us elaborate this hypothesis. The typical child learns from the first year of life that a misdemeanor is followed by some form of parental punishment. That is, the child learns that he must pay for the pleasure of a misdemeanor with some form of punishment. Fear of attack by ghosts, snakes, crocodiles, and witches may be symbolic of anticipated parental punishment, rejection, or chastisement—a fear which the child cannot admit to himself directly. The evidence of strong and persistent

fears in a 10-year-old, especially when they are excessively unrealistic, may be an index of the amount of guilt and conflict the child is experiencing.

In such cases, a rational attempt to reduce the child's fear of ghosts by pointing out that ghosts do not actually exist, is not likely to be successful. After all, the ghosts, in this case, are merely a symbol for the child's unrecognized fear of the parent. Unlike realistic fears (being hit by a car, burned in a fire) unrealistic, symbolic fears can be ameliorated best by attacking the actual source of the fear.

Minority-Group Membership and Anxiety in the Child

All children experience some conflict over the commission or contemplation of aggressive or sexual behavior, all share some anxiety over possible rejection by parents and friends. However, a small number of children carry an additional psychological burden—membership in a minority group that is vulnerable to hostile prejudice and rejection from peers and adults.

IDENTIFICATION WITH ETHNIC GROUPS. In the same way that the child becomes identified with his parents and his social class, he also learns to identify with the other subcultural groups (ethnic, religious, racial) to which they belong. Research studies indicate that these identifications develop gradually and usually become firmly established during the school years. In one of the few studies of the problem, 86 Protestant, Catholic, Jewish, and Negro children were interviewed and asked questions such as "What are you?" "What kinds of people live around your house?" "What is Daddy? Mommy?" (56, 57). The youngest children (3½ to 4½) typically identified themselves and others by referring to names. With advancing age, ethnic designations were used more frequently.

From the age of about 5½ on, the child's conception both of himself and others in terms of names is virtually abandoned. Reference to ethnic group membership becomes widespread, and, in a lesser degree, references to personal qualities are increasingly utilized. As exemplified by the responses secured in the 6½ to 8½ and 8½ to 10½ groups, both the child and his neighbors are most frequently viewed as "American," "Colored," "Jewish," "Catholic," "Italian," "Spanish" (56, 374).

Children generally describe their parents in the same ethnic identification terms they use for themselves.

Young children answered questions like "What does it take to be Catholic, Jewish?" "What does it mean to be Catholic, Jewish?" primarily

in terms of concrete activities, e.g., "talking Jewish," "going to a synagogue," "making communion." Older children more frequently make use of abstractions. Thus a 10-year-old Jewish boy said, "Jewish is a religion just like Christian. You go to Hebrew (school) and you see the star in the Talmud Torah. It means to believe in these things, to respect your parents. You shouldn't steal" (57).

NEGRO CHILDREN'S IDENTIFICATION. The definition of who is Negro is, after all, a cultural one, dictated largely by the majority group. In our culture, anyone with even a small amount of Negro ancestry is defined as Negro. Hence identification with Negroes means acceptance of oneself as a member of a so-called racial group.

In one study of minority-group identification, 253 Negro children between the ages of 3 and 7 were the subjects (26). In order to determine whether these children understood the word Negro, the examiner presented each child with Negro and white dolls and asked him to "give me the doll who looks like a Negro child." Apparently the word was not well understood in the early years, but by the age of 6, a substantial proportion (78 percent) of Negro children chose a brown-skinned doll.

Of course, the fact that a child is aware of the differences between Negroes and whites does not necessarily mean that he has made a personal identification with Negroes. In order to determine whether the children identified themselves with Negroes, the experimenter also requested each child to "give me the doll that looks like you." Again the youngest children were not certain in their choices. However, with increasing age, there was a marked rise in the percent of subjects who chose (and presumably identified) with the colored doll. Thus 36 percent of the 3-year-olds, 48 percent of the 5-year-olds, and 87 percent of the 7-year-olds chose the colored doll as the one "that looks like you."

Acceptance of himself as a member of the Negro group (as defined by our culture) seemed to be significantly influenced by the child's own skin color. Although all the children were aware of race differences, 81 percent of the dark Negroes and 73 percent of the medium-colored group, but only 20 percent of the light-colored group, identified themselves with the colored doll (26).

Similar results were found in a study of children 3 to 7 years of age (128). By age 7, the children were all aware of the concept of "Negro," and Negro as well as white children showed a tendency to assign undesirable traits to the Negro. The Negro child appears to be identified with a group that he regards as possessing negative and undesirable traits. This type of anxiety-arousing identification is apt to make the

Negro child feel insecure and resentful toward the white majority. The frequency of asocial behavior manifested by Negroes is a result, in part, of their hostility to the white majority and an attempt to deny their feelings of insecurity through aggressive and rebellious behavior.

The Negro's perception of a hostile white environment is evidenced in the stories they tell to pictures (30, 99). In one study, the Thematic Apperception Test (a set of pictures used to elicit stories) was given to 50 white and 50 Negro preadolescent boys. Analysis of this test showed that the minority-group children described the general environment as more hostile than did the white subjects (99). The central figures of the stories told by Negroes were often hated, scolded, reprimanded, or physically attacked.

Apparently the Negroes perceived the social environment as basically inhospitable, unfriendly, and threatening, and they revealed strong feelings of personal inferiority and helplessness. Relatively few Negro boys depicted the central figures in their stories as leaders or as friendly and considerate individuals who respect others. This perception of the world as hostile is largely attributable to personal encounters with race prejudice, to general awareness of discrimination against Negroes and to identification with a disadvantaged minority group.

The evidence suggests that identification with ethnic, racial, and religious groups becomes well established during the middle-childhood years. These identifications, if firmly implanted, become a permanent part of the individual's psychological make-up and continue to influence his behavior for many years to come.

The Development of Prejudice

Studies indicate that by kindergarten, many children have developed hostile attitudes toward minority groups. During the early school years, these become more crystallized and conform more closely to adult patterns of prejudice. Radke and her colleagues (111, 112, 113) interviewed 251 lower-middle-class children, ages 5 to 8, in kindergarten and the first two grades of six public schools in the Philadelphia area. Each subject was asked to interpret several pictures showing children of different groups in simple social situations in school, on the street, and on the playground. For example, in one picture, a Negro boy is watching some white children play ball; in another, several boys are watching two Jewish boys coming out of a synagogue. The racial and religious identifications of the individuals depicted are defined by the tester if the child does not acknowledge them immediately, and the child is then asked to

interpret the picture by telling a story about it. The child's attitudes toward minority groups were assessed from the content of his stories.

The stories revealed, not "childish imaginative content, but . . . a more or less faithful reproduction of patterns of group prejudices in the adult culture" (111, 363). Even the youngest children studied had anti-minority group attitudes, and with advancing age, the percentage of children expressing prejudice and awareness of group tensions in society increased. Thus, from kindergarten to the second grade, the proportion of white children who rejected Negroes rose sharply.

Among the religious groups, Jews were most frequently rejected, and hostility toward them also increased with age. In many stories told by gentile children, Jewish children were excluded from a play group because of their religious affiliation. Anti-Semitism was strongest in schools located in areas with heightened intergroup tensions, but group hierarchies and race attitudes were basically similar in all neighborhoods studied. Older children applied group labels much more frequently and freely than younger ones, stating their attitudes with greater feeling and conviction.

Qualitative analysis of the data of this study indicated that the children's prejudices were rarely based on their own experiences. Their verbalizations about minorities obviously reflected negative attitudes learned from the direct or indirect teaching of adults (111, 112).

In a second investigation, the mothers of many of these children were interviewed about their own attitudes toward, and perceptions of, minority groups (113). In general, these parents made statements in support of democratic values and intercultural education and opposed to racial or religious segregation in the schools. However, they had little insight into their own underlying feelings toward minority groups or the implications of their own group membership, and made no direct or planned attempts to teach their children ethnic attitudes. Instead, these were conveyed to the children by restricting social relationships in the home, neighborhood, and school, and by disapproving of friendships with members of certain groups.

Background and Personality of Prejudiced Children

Children may acquire the prejudices of those with whom they identify—parents, peers, their social group. Children of prejudiced parents may become bigoted, while those emulating tolerant parents may develop democratic attitudes. However, more is involved in the development of prejudice than simple imitation of attitudes. Studies of anti-Semitic and

anti-Negro adults show that their prejudices are components of broader patterns of attitudes and are related to basic personality structure. Compared with tolerant people, prejudiced adults tend to be rigid, authoritarian, highly conforming, and overly moralistic (1).

An excellent study by Frenkel-Brunswik "designed to throw light on the determinants of susceptibility to racial or ethnic prejudice and allied forms of undemocratic opinions and attitudes" (43, 295) demonstrates that children's ethnic prejudices are also related to general personality structure. About 1,500 California boys and girls between the ages of 11 and 16 were given tests measuring attitudes toward Jews, Negroes, Japanese, Mexicans, and out-groups in general. A series of statements about these groups was presented and the subjects were asked to express their agreement or disagreement with each. Some contained stereotypical accusations: Japanese cruelty, Negro laziness, Jewish radicalism and money-mindedness, etc. Others involved sharing activities with minority-group members (e.g., eating in the same restaurants, living in the same neighborhood, socializing together). From the larger group, the 120 most and least prejudiced children were selected for further study, including personality tests and interviews.

Ethnocentric (prejudiced) children revealed selfish orientations toward America and indifference toward other countries. They agreed with generally intolerant statements (e.g., "Only people who are like myself have the right to be happy"; "We should not send any of our food to foreign countries, but should think of America first") much more frequently than unprejudiced children did.

Other generalized attitudes typical of the prejudiced child, but not the unprejudiced, were: rejection of all that is weak or different; rigid conceptions of appropriate sex roles, together with intolerance of passive or feminine behavior in boys and masculine or tomboyish behavior in girls; admiration of the strong, tough, powerful, and in the boys, a fear of weakness in themselves; rigid conformity to approved social values and moralistic condemnation of others; feelings of helplessness in a world thought to be full of chaos and destruction. All these attitudes were considered indicative of "narrow and rigid personality" (43).

In discussing relationships with parents, the tolerant children frequently mentioned affection, cooperation, and companionship, while the prejudiced children complained of lack of affection and submission to stern, harsh, punitive treatment. Interviews with the parents offered evidence that the tolerant child "learns at home the equalitarian and individualized approach to people, as the ethnocentric child learns the

authoritarian and hierarchical way of thinking" (43, 302).

From these data, Frenkel-Brunswik concluded:

From the point of view of society as a whole, the most important problem . . . seems to be the child's attitude toward authority. Forced submission to authority produces only surface conformity countermanded by violent underlying destructiveness, dangerous to the very society to which there seems to be conformity. Only a frightened and frustrated child will tend to gain safety and security by oversimplified black-white schematizations and categorizations on the basis of crude, external characteristics. Deliberately planned democratic participation in school and family, individualized approach to the child, and the right proportion of permissiveness and guidance may be instrumental in bringing about the attitude necessary for a genuine identification with society and thus for international understanding (12, 306).

In another investigation of the relationship between personality and ethnic attitudes, a variety of tests were given to 242 fourth-, fifth-, and sixth-grade subjects (51). Subjects were asked to indicate agreement or disagreement with each of: (1) 18 statements regarding Negroes (e.g., "They are pretty dumb"; "They are always honest"); (2) 9 items concerning social distance or acceptance of Negroes and Jews ("I would let them go to my school"; "I would let them be my best friends"); (3) 8 general intolerance statements taken from the Frenkel-Brunswik study summarized above ("A dance hall should allow all kinds of people from all races"; "People from all races should be allowed to stay in the same hotels"). In addition, there were 24 statements which tapped aspects of personality presumably related to prejudice (for example, "There are only two kinds of people; the weak and the strong"; "I have often been punished unfairly"; "Most people hate it when they have to help someone else"). The high correlations obtained between general intolerance and attitudes toward Jews and Negroes, indicate that there is a generalized prejudiced attitude.

Compared with the tolerant children,

. . . the more prejudiced child favors his own immediate group over any larger society, he thinks categorically of "weak" and "strong," he declares himself in favor of authoritarianism on the part of teachers, he is suspicious of integrity of others. . . . In general, the picture one gets of the prejudiced child . . . suggests fear and distrust of others, lack of confidence in himself, feelings of guilt and uneasiness, insecurities and doubts about the larger physical and social world and possibly a reactive hostility toward people who are "weak" or "different" (51, 89).

"Moreover, intolerant children . . . have cynical, distrustful opinions of others, have fears of being exploited or duped, or have feelings of

having been treated unfairly" (51, 91).

These two investigations are in essential agreement about the nature of the personality structure of the prejudiced child. In general, as Frenkel-Brunswik's study indicates, personality characteristics associated with intolerance are established in early parent-child relationships.

In a further study of the antecedents of children's prejudices, one team of investigators (54) made a direct test of the hypothesis that "authoritarian and disciplinary attitudes of parents concerning child training practices would be related to a greater incidence of ethnic bias in the children of these parents" (54, 170).

The subjects were 154 mothers of children whose attitudes toward minority groups had been tested. The mothers answered questionnaires consisting of 81 items grouped into five scales: authoritarian attitudes and practices; permissiveness; parent-child integration (evidence of a close, affectionate parent-child relationship); parental rigidity or fussiness; general good judgment. The correlations between the parental behavior scales and children's attitude scores generally substantiated the original hypothesis. There was a distinct tendency for more of the mothers of prejudiced children (as contrasted with mothers of non-prejudiced children) to score in the higher ranges of the authoritarian and rigidity scales. Correspondingly, fewer of the mothers of low-prejudice children scored low on permissiveness, parent-child integration, and "good judgment" (54).

Prejudice in children appears to be associated with the complex of parental attitudes which is involved in authoritarian handling of control and with lack of tolerance of children's "annoyance value." It appears that attitudes of tolerance and good judgment in child rearing are possibly part of a personality and attitude complex on the parents' part which is associated with freedom from ethnic prejudice in children (54, 180).

What children learn is not a specific attitude, but a whole "complex of attitudes and personality characteristics, which reveal themselves in interpersonal relationships of various sorts" (54, 180).

PREJUDICE AND MENTAL FUNCTIONING. The prejudiced child tends to think in terms of discrete categories. He tends to be rigid in his approach to problems and has difficulty altering his original conception of a problem. Thus, we might expect his approach to intellectual tasks to be less effective than that of a less prejudiced child. In one study (82), 26 boys and 34 girls, 7 years of age, first designated their agreement or disagreement with statements that contained intolerant or prejudiced statements about Mexicans, Catholics, Jews, and Negroes. On the basis of their

answers to the test, the children were categorized as prejudiced or unprejudiced. These children were then given a series of tasks to assess their approach to problems and their ability to solve them. For example, in one test a child was confronted with 16 objects that differed in color, shape, and size (four colors, three shapes, and two sizes). He was asked to divide the 16 blocks into two equal groups. The only correct solution was to divide the blocks on the basis of size. The prejudiced children, in comparison to the unprejudiced, had more difficulty solving the problem, tended to persist with a poor hunch or hypothesis, and showed an inability to make use of the hints that the examiner gave them.

On the basis of this and other tests, the author concluded that the prejudiced child tried to look for simple solutions and had difficulty changing his original approach or idea. The prejudiced child performed poorly when the problems were ambiguous and had to structure the meaning of the problem. In brief, the rigidity of attitude that is present in maintaining a prejudice is also reflected in an individual's approach to intellectual problems (82).

Modification of Racial Attitudes

Since intolerance is related to firmly established characteristics, it might be inferred that intolerance could be reduced only by changing the basic personality structure of the prejudiced person. This, of course, would require intensive clinical treatment.

It would be a serious mistake, however, to assume that there is a one-to-one correspondence between personality and prejudice. If they live among bigoted people, well-adjusted children may learn to behave intolerantly, i.e., in accordance with the standard or accepted attitudes of their own social group. In such cases, prejudice might be viewed as a reflection of the child's identification with his group, rather than as displacement of his hostility toward his parents. Perhaps those whose prejudice has this kind of basis, but who in general are well adjusted and not essentially hostile, would become more tolerant if they were transferred to an environment that promoted "democratic living" and an equalitarian philosophy. On the other hand, those who *need* scapegoats as an outlet for deep-lying aggressive feelings may not be able to relinquish their prejudices, even in a democratic setting. To test these hypotheses, one investigator (100) studied changes in boys' attitudes toward Negroes after a four-week vacation at an interracial camp where Negroes and whites lived, ate, and played together. The subjects were 106 white New York City boys ranging from 8 to 14 years of age.

An indirect test of prejudice was administered to each boy less than 24 hours before he left home, that is, before intimate contact with Negro boys at camp. In this test the child was given 12 photographs of boys' faces, eight of them Negro, four of them white. In the first part of the test, the child simply indicated his order of preference for these faces. In the second part, he selected the pictures of boys he would like to go to the movies with, invite home to lunch, etc. The extent of discrimination against the pictures of Negroes constituted the measure of prejudice. This test was given again just before the children left the camp.

Personality structure was evaluated by analyzing responses to a picture-story test (the Thematic Apperception Test) in which the subject's underlying needs and attitudes were reflected in the kinds of stories he told. Data about personal and social adjustment at camp were collected from two sources: a brief interview with each child and a camp social worker's report.

Following the camp experience, some of the boys increased significantly in prejudice whereas others decreased. As hypothesized, these changes were related to personality structure. In general, the boys who increased in prejudice were hostile, defiant youngsters who perceived the world as cruel and unpleasant and felt they were frequent victims of aggression. Since, for them, the expression of aggression led to punishment, retaliation, and restraint, they probably did not "act out" their hostile feelings. Hence they had greater needs to displace their aggression by means of anti-Negro prejudice.

Moreover, these boys were dissatisfied with the camp itself, the other campers, and interpersonal relations there. The child who was poorly adjusted socially in the situation and did not find the experience rewarding probably did not identify with the camp or accept its attitudes. Under the circumstances, he may have felt more frustrated, and may have become more, rather than less, prejudiced against Negroes.

Children who decreased in prejudice presented a sharply contrasting picture. They manifested fewer aggressive needs, less hostility toward their parents, fewer feelings of restraint, and generally favorable attitudes toward society. Consequently, they had little need to displace aggression through prejudice.

In the camp, they were well accepted by their peers, and their counselors judged them to be high in "ability to relate to others." They complained less about interpersonal relations, were more satisfied with the camp experience and their fellow campers, and probably formed more intimate friendships (100). It may be assumed that they found the ex-

perience rewarding and, consequently, identified more closely with the camp, accepting its tolerant philosophy.

In another extensive study on the modification of racial attitudes (110), over 1,000 children, 8 to 13 years of age, were observed at a summer camp. Some of the children, both white and Negro, lived in desegregated cabins for a two-week period. The behavior of the children in the desegregated situation was compared with the behavior of children who lived in segregated cabins.

Signs of tension (enuresis, nightmares, crying, physical symptoms, repeated accidents) were more frequent among the children living in the desegregated cabins. Moreover, the white children initially became vigilant to possible aggression from the Negroes. As might be expected from earlier work, both the Negro and white children viewed the latter as more desirable for friends and assigned higher status to the whites. However, there was a general trend for both Negro and white children to view the Negroes as more desirable after the two weeks of desegregated living.

Although the experience of living in a biracial setting decreased suspicion and hostility between the groups, the most important catalyst for change was the counselor. His attitudes and personality, particularly his warmth and personal security, facilitated the establishment of good interpersonal relation between the Negro and white children.

Apparently both personality and social situational factors are involved in changes in race attitudes. The study suggests that prejudice may be reduced by educational measures, such as encouraging contacts between members of various races. Moreover, this study highlights the importance of the attitudes of authority figures, such as teachers, in promoting more positive feelings toward minority groups in a desegregated setting, whether it is a camp or a school. Modification of the mutual fears, suspicions, and resentments of Negro and white children is most apt to occur when the adult in charge favors desegregation and is admired and liked by the children (110).

REFERENCES AND ADDITIONAL READING

1. Adorno, T. W., Frenkel-Brunswik, E., Levinson, D. J., & Stanford, R. N. *The authoritarian personality*. New York: Harper, 1950.
2. Allen, F. H., & Pearson, G. H. J. The emotions of the physically handicapped child. *Brit. J. Med. Psychol.*, 1928, 8, 212-235.
3. Amatora, M. Interests of preadolescent boys and girls. *Genet. Psychol. Monogr.*, 1960, 61, 77-114.
4. Austin, M. C., & Thompson, G. G. Children's friendship: a study of the

- bases on which children select and reject their best friends. *J. educ. Psychol.*, 1948, 39, 101-116.
5. Bailyn, L. Mass media and children: A study of exposure habits and cognitive effects. *Psychol. Monogr.*, 1959, 73, (1), 1-48.
 6. Bayley, N., & Schaefer, E. S. Relationships between socioeconomic variables and the behavior of mothers toward young children. *J. genet. Psychol.*, 1960, 96, 61-77.
 7. Becker, W. C., Peterson, D. R., Hallmer, L. A., Shoemaker D. J., & Quay, H. C. Factors in parental behavior in children. *J. consult. Psychol.*, 1959, 23, 107-118.
 8. Bennett, E. M., & Cohen, L. R. Men and women: Personality patterns and contrasts. *Genet. Psychol. Monogr.*, 1959, 59, 101-155.
 9. Berenda, R. W. *The influence of the group on the judgments of children*. New York: Kings Crown Press, 1950.
 10. Blum, G. *Psychoanalytic theories of personality*. New York: McGraw-Hill, 1953.
 11. Bonney, M. E. A study of the relation of intelligence, family size, and sex differences with mutual friendships in the primary grades. *Child Developm.*, 1942, 13, 79-100.
 12. Bonney, M. E. A study of social status on the second grade level. *J. genet. Psychol.*, 1942, 60, 271-305.
 13. Bonney, M. E. The constancy of sociometric scores and their relationship to teacher judgments of social success and to personality self-ratings. *Sociometry*, 1943, 6, 409-424.
 14. Bonney, M. E. Sex differences in social success and personality traits. *Child Developm.*, 1944, 15, 63-79.
 15. Bonney, M. E. Relationships between social success, family size, socioeconomic home background and intelligence among school children in grades III and IV. *Sociometry*, 1944, 7, 26-39.
 16. Bonney, M. E. A sociometric study of the relationships of some factors to mutual friendships on the elementary, secondary, and college levels. *Sociometry*, 1946, 9, 21-47.
 17. Bossard, J. H. S., & Sanger, M. The large family. *Amer. sociol. Rev.*, 1952, 17, 3-9.
 18. Breckenridge, M. E., & Vincent, E. L. *Child development; physical and and physiological growth through the school years*. Philadelphia: Saunders, 1949.
 19. Brown, A. W., Morrison, J., & Couch, G. B. Influence of affectional family relationships on character development. *J. abnorm. soc. Psychol.*, 1947, 42, 422-428.
 20. Brown, G. D. The development of diabetic children, with special reference to mental and personality comparisons. *Child Developm.*, 1938, 9, 175-183.
 21. Buhler, C., Smither, F., & Richardson, S. *Childhood problems and the the teacher*. New York: Holt, 1952.
 22. Cameron, N. *The psychology of behavior disorder*. Boston: Houghton Mifflin, 1947.

23. Campbell, E. H. The social-sex development of children. *Genet. Psychol. Monogr.*, 1939, **21**, (4), 461-552.
24. Child, I. L. The relation of somatotype to self-ratings on Sheldon's temperamental traits. *J. Pers.*, 1950, **18**, 440-453.
25. Child, I. L., Potter, E. H., & Levine, E. M. Children's text books and personality development; An exploration in the social psychology of education. *Psychol. Monogr.*, 1946, **60**, No. 3.
26. Clark, K. B., & Clark, M. P. Racial identification, and preference in Negro children. In T. M. Newcomb and E. L. Hartley (Eds.) *Readings in social psychology*. New York: Holt, 1947.
27. Cobb, E. A. Family press variables. *Monogr. soc. Res. Child Developm.*, 1943, **8**, 327-361.
28. Cobb, H. V. Role wishes and general wishes of children and adolescents. *Child Developm.*, 1954, **25**, 161-171.
29. Crandall, V. J., & Rabson, Alice. Children's repetition choices in an intellectual achievement situation following success and failure. *J. genet. Psychol.*, 1960, **97**, 161-168.
30. Dai, B. Some problems of personality development among Negro children. In C. Kluckholm and H. A. Murray (Eds.) *Personality in nature, society, and culture*. New York: Knopf, 1953, 545-566.
31. Damrin, D. E. Family size and sibling age, sex, and position as related to certain aspects of adjustment. *J. soc. Psychol.*, 1949, **29**, 93-102.
32. Davis, A. American status systems and the socialization of the child. *Amer. sociol. Rev.*, 1941, **6**, 345-354.
33. Davis, A. Child training and social class. In R. G. Barker, J. S. Kounin, and H. F. Wright (Eds.) *Child behavior and development*. New York: McGraw-Hill, 1943.
34. Dolger, L., & Ginandes, J. Children's attitudes toward discipline as related to socio-economic status. *J. exp. Educ.*, 1946, **15**, 161-165.
35. Dunlop, G. M. Certain aspects of children's fears. Unpublished doctoral dissertation, Columbia Univer., 1951.
36. Douvan, E. Social status and success strivings. *J. abnorm. soc. Psychol.*, 1956, **52**, 219-223.
37. Emmerich, W. Parental identification in young children. *Genet. Psychol. Monogr.*, 1959, **60**, 257-308.
38. England, A. O. Nonstructured approach to the study of children's fears. *J. clin. Psychol.*, 1946, **2**, 363-368.
39. England, A. O. Cultural milieu, and parental identification. *Nerv. Child*, 1947, **6**, 301-305.
40. Fenton, N. The only child. *J. genet. Psychol.*, 1928, **35**, 546-556.
41. Field, M. Maternal attitudes found in twenty-five cases of children with primary behavior disorders. *Amer. J. Orthopsychiat.*, 1940, **10**, 293-312.
42. Francis, K. V., & Fillmore, E. A. The influence of the environment upon the personality of children. *Univer. Iowa Stud. Welf.*, 1934, **9**, No. 2.
43. Frenkel-Brunswik, E. A. study of prejudice in children. *Human Relations*, 1948, **1**, 295-306.

44. Furfey, P. H. Some factors influencing the selection of boys' chums. *J. appl. Psychol.*, 1927, 11, 47-51.
45. Garner, A. M., & Wenar, G. *The mother-child interaction in psychosomatic disorders*. Urbana: Univer. Illinois Press, 1959.
46. Gates, M. F. A comparative study of problems of social and emotional adjustment of crippled and non-crippled girls and boys. *J. genet. Psychol.*, 1946, 68, 219-244.
47. Glueck, S., & Glueck, E. *Unraveling juvenile delinquency*. Cambridge, Mass.: Harvard Univer. Press, 1950.
48. Goodenough, F. L. The development of the reactive process from early childhood to maturity. *J. exp. Psychol.*, 1935, 18, 431-450.
49. Goodenough, F. L., & Leahy, A. M. Effects of certain family relationships upon the development of personality. *Ped. Sem.*, 1927, 34, 45-71.
50. Gough, H. G. The relationship of socio-economic status to personality inventory and achievement test scores. *J. educ. Psychol.*, 1946, 37, 527-540.
51. Gough, H. G., Harris, D. B., Martin, W. E., & Edwards, M. Children's ethnic attitudes: I. Relationship to certain personality factors. *Child Develpm.*, 1950, 21, 83-91.
52. Guilford, R. B., & Worcester, D. A. A comparative study of the only and non-only child. *J. genet. Psychol.*, 1930, 38, 411-426.
53. Hardy, M. C. Aspects of home environment in relation to behavior at the elementary school age. *J. juv. Res.*, 1937, 21, 206-225.
54. Harris, D. B., Gough, H. G., & Martin, W. E. Children's ethnic attitudes. II. Relationship to parental beliefs concerning child training. *Child Develpm.*, 1950, 21, 169-181.
55. Harrower, M. R. Social status and the moral development of the child. *Brit. J. educ. Psychol.*, 1934, 4, 75-95.
56. Hartley, E. L., Rosenbaum, M., & Schwartz, S. Children's use of ethnic frames of references: An exploratory study of children's conceptualization of multiple ethnic group membership. *J. Psychol.*, 1948, 26, 367-386.
57. Hartley, E. L., Rosenbaum, M., & Schwartz, S. Children's perception of ethnic group membership. *J. Psychol.*, 26, 387-398.
58. Hartmann, H., Kris, E., & Loewenstein, R. M. Comments on the formation of psychic structure. *Psychoanal. Stud. of the Child*, 1947, 2, 11-38.
59. Hattendorf, K. W. A study of the questions of young children concerning sex: a phase of an experimental approach to parental education. *J. soc. Psychol.*, 3, 37-65.
60. Havighurst, R. J., Robinson, M. Z., & Dorr, M. The development of ideal self in childhood and adolescence. *J. educ. Res.*, 1946, 40, 241-257.
61. *Health bulletin for teachers*. New York: Metropolitan Life Insurance Co., November, 1949.
62. Hoffman, M. L., Mitsos, S. B., & Protz, R. E. Achievement striving, social class, and test anxiety. *J. abnorm. soc. Psychol.*, 1958, 56, 401-403.
63. Horrocks, J. E., & Buker, M. E. A study of the friendship fluctuations of

- preadolescents. *J. genet. Psychol.*, 1951, 78, 131-144.
64. Jackson, L. A. Emotional attitudes toward the family of normal, neurotic, and delinquent children. *Brit. J. Psychol.*, 1950, 41, Part I, 35-51.
 65. Jackson, L. A. Emotional attitudes toward the family of normal, neurotic and delinquent children. *Brit. J. Psychol.*, 1950, 41, Part II, 173-185.
 66. Jenkins, L. M. A comparative study of motor achievements of children of five, six and seven years of age. *Teach. Coll. Contrib. Educ.*, Columbia Univer., 1930, No. 14.
 67. Jenkins, J. J., & Russell, W. A. An atlas of semantic profiles for 360 words. *Amer. J. Psychol.*, 1959, 71, 688-699.
 68. Jersild, A. T., Markey, Frances U., & Jersild, Catherine L. Children's fears, dreams, wishes, daydreams, likes, dislikes, pleasant and unpleasant memories. *Child Developm. Monogr.*, 1933, No. 12.
 69. Jones, H. E. *The development of physical abilities in adolescence*. 43rd Yearb. natl. Soc. Stud. Educ., Part I. Chicago: Univer. of Chicago Press, 1944.
 70. Kagan, J. Socialization of aggression and the perception of parents in fantasy. *Child Developm.*, 1958, 29, 311-320.
 71. Kagan, J., & Lemkin, J. The child's differential perception of parental attitudes. *J. abnorm. soc. Psychol.*, 1960, 61, 440-443.
 72. Kagan, J., Hosken, B., & Watson, S. The child's symbolic conceptualization of the parents. *Child Developm.*, 1961, 32, 625-636.
 73. Kagan, J., & Moss, H. A. *Birth to Maturity*. New York: Wiley, 1962.
 74. Kammerer, R. C. An exploratory study of crippled children. *Psychol. Rec.*, 1940, 4, 47-100.
 75. Kavin, E. *Children of the preschool age*. Chicago: Univer. of Chicago Press, 1934.
 76. Kinsey, A. C., Pomeroy, W. B., & Martin, C. E. *Sexual behavior in the human male*. Philadelphia: Saunders, 1948.
 77. Koch, Helen L. Attitudes of children toward their peers as related to certain characteristics of their siblings. *Psychol. Monogr.*, 1956, 70, No. 426, 1-41.
 78. Koch, Helen L. Some emotional attitudes of the young child in relation to characteristics of his siblings. *Child Developm.*, 1956, 27, 393-426.
 79. Koch, Helen L. Sissiness and tomboyishness in relation to sibling characteristics. *J. genet. Psychol.*, 1956, 88, 231-244.
 80. Kohn, M. L. Social class and parental values. *Amer. J. Sociol.*, 1959, 64, 337-351.
 81. Krout, M. H. Typical behavior patterns in twenty-six ordinal positions. *J. genet. Psychol.*, 1939, 55, 3-30.
 82. Kutner, B. Patterns of mental functioning associated with prejudice in children. *Psychol. Monogr.*, 1958, 72, (Whole No. 460).
 83. Lerner, E. *Constraint areas and moral judgment of children*. Menasha, Wis.: Banta, 1937.
 84. Lesser, G. S. The relationship between overt and fantasy aggression as a function of maternal response to aggression. *J. abnorm. soc. Psychol.*, 1957, 55, 218-221.

85. Lesser, G. S., & Abelson, R. P. Personality correlates of persuasibility in children. In Janis, I. C., Hovland, C. I., et al. *Personality and persuasibility*. New Haven: Yale Univer. Press, 1959, 187-206.
86. Maccoby, E. E., Gibbs, P. K., and the Staff of the Laboratory of Human Development, Harvard University. Methods of child-rearing in two social classes. In W. E. Martin and C. B. Stendler (Eds.) *Readings in child development*. New York: Harcourt Brace, 1954, 380-396.
87. MacDonald, M., McGuire, C., & Havighurst, R. J. Leisure activities and the socio-economic status of children. *Amer. J. Sociol.*, 1949, **54**, 505-519.
88. Maddy, N. R. Comparison of children's personality traits, attitudes, and intelligence with parental occupation. *Genet. Psychol. Monogr.*, 1943, **27**, 1-65.
89. Macfarlane, J. W., Allen, L., & Honzik, M. P. A developmental study of the behavior problems of normal children between twenty-one months and fourteen years. *Univer. of Calif. Publ. in Child Developm.*, 1954, No. 2.
90. Meltzer, H. Economic security and children's attitude to parents. *Amer. J. Orthopsychiat.*, 1936, **6**, 590-608.
91. Merry, R. V. *Problems in the education of visually handicapped children*. Cambridge: Harvard Univ. Press, 1933.
92. Miller, H., & Baruch, D. W. A study of hostility in allergic children. *Amer. J. Orthopsychiat.*, 1950, **25**, 506-519.
93. Miller, D. R., & Swanson, G. E. *Inner conflict and defense*. New York: Holt and Dryden, 1960.
94. Mischel, W. Preference for delayed reinforcements: An experimental study of a cultural observation. *J. abnorm. soc. Psychol.*, 1958, **56**, 57-61.
95. Mischel, W., & Metzner, R. Preference for delayed reward as a function of age, intelligence and length of delay interval. *J. abnorm. soc. Psychol.*, in press.
96. Mischel, W. Delay of gratification and need for achievement and acquiescence in another culture. *J. abnorm. soc. Psychol.*, in press.
97. Mischel, W. Father absence and delay of gratification: cross cultural comparisons. *J. abnorm. soc. Psychol.*, in press.
98. Murphy, L. B. Childhood experience in relation to personality development. In J. McV. Hunt (Ed.) *Personality and the behavior disorders*. Vol. 2. New York: Ronald, 1944, 652-690.
99. Mussen, P. H. Differences between the TAT responses of Negro and white boys. *J. consult. Psychol.*, 1953, **17**, 373-376.
100. Mussen, P. H. Some personality and social factors related to changes in children's attitudes toward Negroes. *J. abnorm. soc. Psychol.*, 1950, **45**, 423-441.
101. Mussen, P. H., & Naylor, H. K. The relationship between overt and fantasy aggression. *J. abnorm. soc. Psychol.*, 1954, **49**, 235-240.
102. Newell, H. W. The psycho-dynamics of maternal rejection. *Amer. J. Orthopsychiat.*, 1934, **4**, 387-401.

103. Newell, H. W. A further study of maternal rejection. *Amer. J. Orthopsychiat.*, 1936, 6, 576-588.
104. Phillips, E. L., Shenker, S., & Revitz, P. The assimilation of the new child into the group. *Psychiatry*, 1951, 14, 319-325.
105. Piaget, J. *The moral judgment of the child*. London: Kegan Paul, 1932.
106. Pintner, R., & Lev, J. Worries of school children, *J. genet. Psychol.*, 1940, 56, 67-76.
107. Polansky, N., Lippitt, R., & Redl, F. An investigation of behavioral contagion in groups. *Human Relations*, 1950, 3, 319-348.
108. Pope, B. Socioeconomic contrasts in children's peer culture prestige values. *Genet. Psychol. Monogr.*, 1953, 48, 157-220.
109. Rabban, M. Sex-role identification in young children, in two diverse social groups. *Genet. Psychol. Monogr.*, 1950, 42, 81-158.
110. Radke-Yarrow, Marian (Ed.). Interpersonal dynamics in a desegregation process. *J. soc. Issues*, 1958, 14, 3-63.
111. Radke, M. J., Trager, H. G., & Davis, H. Social perceptions and attitudes of children. *Genet. Psychol. Monogr.*, 1949, 40, 327-447.
112. Radke, M. J., & Trager, H. G. Children's perception of the social roles of Negroes and whites. *J. Psychol.*, 1950, 29, 3-33.
113. Radke-Yarrow, M., Trager, H. G., & Miller, J. The role of parents in the development of children's ethnic attitudes. *Child Develpm.*, 1952, 23, 13-53.
114. Roberts, C. S. Ordinal position and its relation to some aspects of personality. *J. genet. Psychol.*, 1938, 53, 173-213.
115. Rosenblith, Judy F. Learning by imitation in kindergarten children. *Child Develpm.*, 1959, 30, 69-80.
116. Rosenow, C., & Whyte, A. H. The ordinal position of problem children. *Amer. J. Orthopsychiat.*, 1931, 1, 430-434.
117. Sanford, R. N., Adkins, N. M., Miller, R. B., Cobb, E. A., et al. Physique, personality, and scholarship: a cooperative study of school children. *Monogr. soc. Res. Child Develpm.*, 1943, 8, No. 1.
118. Schaefer, E. S., & Bayley, Nancy. Consistency of maternal behavior from infancy to preadolescence. *J. abnorm. soc. Psychol.*, 1960, 61, 1-6.
119. Sears, P. S. Doll play aggression in normal young children: influence of sex, age, sibling status, father's absence. *Psychol. Monogr.*, 1951, 65(6).
120. Sears, R. R. Survey of objective studies of psychoanalytic concepts. *Soc. Sci. Res. Council Bull.*, No. 51. New York: 1943.
121. Sheldon, W. H. (with S. S. Stevens). *The varieties of temperament*. New York: Harper, 1942.
122. Smith S. Age and sex differences in children's opinion concerning sex differences. *J. genet. Psychol.*, 1939, 54, 17-25.
123. Spock, B. *Pocket book of baby and child care*. New York: Pocket Books, 1946.
124. Springer, N. N. The influence of general social status on the emotional stability of children. *J. genet. Psychol.*, 1938, 53, 321-328.
125. Springer, N. N. A comparative study of behavior traits of deaf and hear-

- ing children in New York City. *Amer. Annals of the Deaf*, 1938, 83, 255-273.
126. Springer, N. N. The influence of general social status on school children's behavior. *J. educ. Res.*, 1939, 32, 583-591.
 127. Stagner, R. Economic status and personality. *School and Society*, 1935, 42, 551-552.
 128. Stevenson, H. W., & Stewart, C. C. A developmental study of racial awareness in young children. *Child Developm.*, 1958, 29, 399-410.
 129. Strodbeck, F. L. Family interaction, values, and achievement. In McClelland, D. C., Baldwin, A. C., Bronfenbrenner, U., and Strodbeck, F. L., *Talent and society*. Princeton: D. Van Nostrand, 1958, 135-194.
 130. Symonds, P. M. *The psychology of parent-child relationships*. New York: Appleton-Century, 1939.
 131. Thurstone, L. L., & Jenkins, R. L. *Order of birth, parent-age, and intelligence*. Chicago: Univer. of Chicago Press, 1931.
 132. Tuddenham, R. D. Studies in reputation: I. Sex and grade differences in school children's evaluation of their peers. II. The diagnosis of social adjustment. *Psychol. Monogr.*, 1952, 66, No. 333.
 133. Tuddenham, R. D. Studies in reputation: III. Correlates of popularity among elementary school children. *J. educ. Psychol.*, 1951, 42, 257-276.
 134. Tyler, L. E. The development of vocational interests. I. The organization of likes and dislikes in ten-year-old children. *J. genet. Psychol.*, 1955, 86, 33-44.
 135. Warner, W. L., & Lunt, P. S. *Social life in a modern community*. New Haven: Yale Univer. Press, 1941.
 136. Watson, E. H., & Lowrey, G. H. *Growth and development of children*. Chicago: Year Book Publishers, 1954.
 137. Watson, G. Some personality differences in children related to strict or permissive parental discipline. *J. Psychol.*, 1957, 44, 227-249.
 138. Weinstein, E. A. Weights assigned by children to criteria of prestige. *Sociometry*, 1956, 19, 126-132.
 139. Wheatlery, G. M., & Hallock, G. T. *Health observations of school children*. New York: McGraw-Hill, 1951.
 140. White, R. W. *The abnormal personality: a textbook*. New York: Ronald, 1948.
 141. Whiting, J. W. M., & Child, I. L. *Child training and personality*. New Haven: Yale Univer. Press, 1953.
 142. Wile, I. S., & Jones, A. B. Ordinal position and the behavior disorders of young children. *J. genet. Psychol.*, 1937, 51, 61-93.
 143. Winker, J. B. Age trends and sex differences in the wishes, identification, activities and fears of children. *Child Developm.*, 1949, 20, 191-200.

12

DEVELOPMENT DURING THE MIDDLE-CHILDHOOD YEARS

II. ADJUSTMENT TO SCHOOL AND INTELLECTUAL DEVELOPMENT

We have already seen that differences in physical status, in parent-child relationships, and in social-class background contribute to differences in personality structure during middle childhood. There are other factors which also influence development during this period. One of the most important of these, and the one with which we shall be primarily concerned in this chapter, is the school. Once a child has entered kindergarten or first grade, school becomes for more than a decade the center of his extrafamilial world, occupying almost half of his waking hours.

The importance of the school's role in the child's life would be difficult to overestimate. Not only does it strengthen some of the responses that the child's parents are teaching him; it also teaches him many new responses. The number, variety, and complexity of learned responses required of adults in our culture is so great that even the most remarkable of parents could hardly accomplish the task of instilling all of them in their children without assistance. As one of the principal socializing agents of our society, the school is uniquely qualified to supplement parental training. By teaching the child academic skills, by broadening his store of cultural information, and by giving him supervised practice in social relationships, it makes him better able to deal comfortably with the everwidening range of problems that lie ahead of him on the road toward adulthood.

A child's behavior at school will depend not only on factors in the school situation itself but, probably even more importantly, on factors which make him a unique individual (e.g., his physical status, parent-child relationships, intelligence, and class status). Hence we shall con-



FIG. 43. School as a socializing agency. Korean war orphans. (Courtesy of American Red Cross.)

sider how school adjustment is influenced both by differences among children and by differences in school experiences.

CHARACTERISTICS AND DEMANDS OF THE SCHOOL ENVIRONMENT

For many children, school entrance marks the first separation from mother for a large part of the day almost everyday. The school, therefore, plays an important part in helping the child to reduce his dependent ties to his home. It also presents him with a new adult whom he must obey and whose acceptance he may court. This new adult will require the child to learn certain responses which initially are not inherently rewarding. Hopefully, the school will contribute to the development of a desire to master intellectual skills, to acquire a pride in one's work, to persevere in solving problems, and to formulate long-range goals. Finally, the school provides the child with increased opportunities to establish deeper relationships with age-mates.

Many new behaviors are learned during the elementary school years.

Previously established but inefficient responses (e.g., crying in stress situations) must be extinguished, while existing motives (e.g., mastery) must be stimulated and strengthened. The elements involved in this new learning situation will be analyzed in this chapter in order to show how the child's earlier experiences influence his reactions to the school setting.

The Teacher as a Substitute Mother

In almost all instances, the child's first teacher is a woman. She helps the child to dress and undress when necessary; she praises good behavior and punishes bad; she is a source of nurturance; and she encourages honesty, perseverance, and maturity. In many ways her appearance and behavior are similar to those of the child's mother; hence, it is not unreasonable to assume that many children react to the teacher as though she were a substitute mother.

It will be recalled (see Chapter 5) that according to the principles of generalization and mediated generalization, the individual will transfer attitudes and reactions learned in response to one stimulus to others that are viewed as similar to the original. The similarities between teacher and mother in sex, age, and salient behaviors are usually sufficiently numerous to support a high degree of generalization from one to the other. The motives, attitudes, fears, and overt behaviors that the child had developed in relationship to his mother are, therefore, likely to generalize to the teacher. If the child desires the nurturance of the mother and views her as accepting, he is likely to approach the teacher with the same positive attitude. If, on the other hand, the child has hostile feelings toward a rejecting mother and has generally behaved aggressively toward her, he may transfer these responses to the teacher.

Since mothers are generally viewed by young children as more nurturant and less fear-arousing than fathers, there are probably advantages in having a woman as the child's first contact with an adult in the school environment. The kindergarten atmosphere and school performance might be quite different if all kindergarten and first-grade teachers were men. Under such conditions, some children might experience more tension and anxiety. However, there might be some positive results, especially for boys. At age 5, the boy is establishing his identification with his father, and, in some cases, this identification with the adult male role may increase tendencies to rebel against the mother. Some boys regard the father as the "boss" in the house, and many young boys strive to de-emphasize the power and competence of adult females. The more frequent, mischievous behavior of school boys suggests that

they are less anxious than girls over rejection by the female teacher; girls are more typically obedient and conscientious with women teachers. The fact that reading, spelling, and conduct problems are more frequent among boys than girls in the elementary school years may be indirect evidence that boys enter school with slightly more resistance and hostility to the teacher than girls do. It is at least theoretically possible that, if the boy's first teacher were a man, there might be less resistance and a greater desire to gain the teacher's acceptance.

More important, perhaps, children would be more likely to associate the act of *acquiring knowledge with masculinity* if their elementary grade teachers were men instead of women. The degree of masculinity or femininity that is associated with any activity is, in part, a function of the sex of the people who perform and encourage the activity. Cooking and sewing are classified as feminine activities because women usually do them. Since elementary school classes are conducted primarily by women, the child may have a tendency initially to view schoolwork and studiousness as more closely related to "womens' work" and, therefore, more appropriate for girls than for boys.

The Responses To Be Learned

The teacher is viewed as an authority figure who demands specific behaviors, and the child's success in school will depend on his readiness to adopt the responses that are required of him. If there is resistance to the acquisition of behaviors that the teacher encourages, there will be less effective learning. That is, if the child's previous experiences and training have led him to rebel against adult women, to view intellectual work as a "waste of time," or to consider cutting and pasting as silly, he will have a difficult time adjusting initially to the school environment.

What, then, are the major responses to be learned during the first five years of school? There are, of course, the intellectual skills of reading, arithmetic, spelling; the kindergarten and first-grade activities of coloring, painting, and pasting; and the social skills, habits, and attitudes which play an important role in our culture.

In our society the teacher's values are usually middle-class in content. She rewards neatness, obedience, cooperation, and cleanliness; she punishes waste, lack of responsibility, lying, and aggressiveness. Many teachers feel that stealing, cheating, lying, and disobedience are the most serious crimes a young child can commit (9). It is easy to see that the prior patterns of familial rewards and punishments will usually facilitate the girls' initial adjustment to the teacher's values. For example,

neatness and inhibition of aggressive behavior are characteristic sex-typed responses generally acquired by girls during the preschool years. Sloppiness and mischievous behavior are more often expected of boys, and boys are less likely to be punished for indulging in them. It might be anticipated, therefore, that boys, more than girls, will be subjected to disapproval by the teacher, and more friction should develop between boys and their teachers than between girls and their teachers.

The data on social-class differences indicate that lower-class boys, whose backgrounds reflect different attitudes from those of the teachers, are least likely to adopt the values that are encouraged by the school (neatness, obedience to a woman, perseverance, desire to master school subjects). Hence, it is not surprising that these boys show poorer performance in school subjects than middle-class boys.

Children's Attitudes Toward Beginning School

In view of the formidable adjustments that the child must make upon entering school, the question of how children react to beginning school is of considerable interest. In one study (81, 82) of this problem, 212 mothers of first-grade children were interviewed three times. The first interview, conducted before the child entered school, dealt with children's attitudes toward beginning school. Almost all the mothers (197 out of 212) reported that their children had favorable anticipations of school. It appeared that parents, older siblings, and neighborhood chums had given them a great deal of information about school, and this pervasive "cultural dramatization" of the event had stimulated interest and eagerness to begin. After the children had attended school for two months, the mothers were again interviewed to determine the behavioral and attitudinal changes occurring in the intervening period. An overwhelming majority (86 percent) noted definite changes in the child's self-concept and behavior after two months of school attendance. These included enhanced feelings of self-importance and bigness, manifestations of increased independence (such as dressing self and beginning work without special instructions), and a general improvement in behavior. For example, the children were reported to be more responsible, helpful, cooperative, and reasonable; better-humored and more self-controlled; and less irritable and explosive.

The third interview was held eight months after the beginning of school. Mothers were asked to compare their children's behavior with what it had been before they went to school and to rate them as displaying more, equal, or less maturity, self-control, helpfulness, responsibility,

patience, obedience, self-confidence, and ability to get along with playmates. An analysis of the data showed that most mothers felt that their children had improved significantly in all these traits with the exception of obedience and patience. From the point of view of ease of handling the child, only 14 percent of the mothers said that it had been a more trying year than the preceding one. Almost 60 percent said it was easier. These impressions may, of course, have been partly due to the fact that once the children were in school, their mothers had to handle them fewer hours a day. Furthermore, since no control group of like-age children who stayed at home was available for comparison, we cannot be sure how much the children's behavior might have improved without school, as the result of maturational and other environmental influences.

Nevertheless, it may be concluded that entry into school was eagerly anticipated and approached by most children, and it seems likely that school did promote more mature behavior. Improvements in personality characteristics and behavior were noted within the first two months and endured at least throughout the first year of school.

But while reactions to school were generally positive, the picture was not entirely blissful. For example, although 92 percent of the children in this study were reported to like school, 42 percent criticized both the school and teacher, and 39 percent occasionally did not want to go to school within the first two months. Obviously, all children did not react to school in the same way.

These findings suggest that although most children like school, the degree of liking varies considerably. Also there appears to be an important minority which finds the first few months of school at least occasionally a disturbing experience. These studies do not, of course, tell us why there are individual differences in school adjustment. This question demands an understanding of both the personal and environmental factors involved.

SOCIOECONOMIC STATUS AND SCHOOL ACHIEVEMENT

Parental Rewards for School Achievement

Middle-class parents typically display marked interest in the child's reports of his school activities, praise him for his first stumbling attempts at reading, and may even provide more tangible rewards, in the form of movies, bicycles, or spending money, for school success. Furthermore, as he grows older, the middle- and upper-class child is able to see for him-

self the delayed rewards to which academic skills may lead, by noting the important part they play in the success of his doctor-father, his businessman-uncle, or his accountant-older brother. Of course, we would not expect these distantly anticipated rewards to be very effective if the child's immediate experiences were punishing, but when these latter are favorable, the prospects of additional future rewards may provide increased impetus for the child to do well in school.

Parental interest in the school is less common among the lower socioeconomic groups. Upper-middle-class parents are great believers in education as the solution to many problems—economic, social, and personal. Lower-middle- and upper-lower-class parents tend to look upon school more as a way of getting children ready for adulthood (34, 35). They are not great believers in education *per se*, but see it as necessary for vocational success. Nevertheless all these groups to some degree reinforce the value of school because they expect the school to do something for their children (81).

Several factors seem to us to be meaningfully related to the more positive attitudes toward academic success shown by children and parents of the higher socioeconomic group.

For one thing, the school child's social-class identification tends to be strong and threats to his membership status in a particular social class will be tremendously anxiety-producing. School success is much more important in maintaining class membership in the higher classes than in the lower, and consequently middle- and upper-class children will be more motivated to achieve it. They see that the kinds of jobs to which they and other members of their social class aspire depend heavily on the acquisition of academic skills. Obviously school success is much more important to the future banker, lawyer, or business executive than it is to the laborer or farm hand.

Moreover, upper- and middle-class parents are likely to encourage their children to work hard in school because of their genuine interest in the child's academic progress and because of the threat to their own social status of having a child who "couldn't make the grade." However, parents of any class may desire to have their children improve their social status beyond that of their own. The school may provide the best route toward social mobility, not only because it increases academic skills, but because it offers an opportunity for imitation of higher-class children (22).

Parental attitudes toward school may be influenced by economic considerations. In general, lower-class parents fail to encourage a child to set ambitious educational goals, since they feel that they will be unable to support the child through college or graduate school. Of course,

within any socioeconomic class there are wide variations in attitudes toward education. Some low-income families may make great financial sacrifices in order to provide for the children's education, while some middle-income families may be unwilling to sacrifice luxuries for this purpose.

Finally, children of middle-class parents are more likely to see their parents engage in intellectual work. That is, the child of a doctor, lawyer, architect, accountant, or engineer has the opportunity to watch his father read books or journals and show a personal interest in intellectual matters. His mother also is likely to read books in the evening or manifest an interest in adult education courses or community lectures. Thus, middle-class parents often present themselves as intellectual *models for identification*, as people who not only encourage intellectual goals for the child, but also value them in their own lives. They practice what they preach.

Lower-class parents, on the other hand, are less likely to engage in intellectual activities. Lower-class children have less opportunity to see their parents show an interest in intellectual mastery. Thus, some lower-class parents who encourage academic excellence in their child may not succeed in this endeavor if they create a condition of "Do as I say, but not as I do."

As we learned in Chapter 9, the child's desire to identify with his parents is one of the most powerful forces that leads to behavioral similarity between child and parent. Even though a lower-class parent might reward academic proficiency, the child's motivation for good school performance will not be maximal if the parent does not practice this value in his daily life.

Finally, the typical lower-class peer group is less likely than the middle-class one to regard good grades as positive and important. In sum, the lower-class child has three psychological obstacles blocking the development of a strong motive to achieve in school—the lack of intellectual behavior on the part of his parents, minimal parental encouragement of good school performance, and the values of the peer group. However, if the lower-class child is subjected to parental or peer influences that encourage intellectual mastery, the probability of his acquiring a concern for schoolwork is, of course, increased.

As might be anticipated, socioeconomic status is positively associated with scores on standard intelligence tests. In general, children from middle- and upper-class homes score higher on these tests than children from lower-class homes (2, 11, 31, 44, 66). This is due, in part, to the fact that lower-class children are less motivated to master language skills

and less concerned with their performance on intelligence tests. Intelligence test questions emphasize those language skills (e.g., vocabulary, verbal comprehension, arithmetic reasoning) that are encouraged more by middle-class than by lower-class parents.

Minority-Group Status and Parental Attitudes Toward School

Socioeconomic differences in parental attitudes toward school are not restricted to the white, native-born majority group in our culture. Social-class differences and attitudes seem to cut across racial and other minority-group lines. For example, Davis and Dollard (23) have shown that among middle-class Negroes in the South, the concern of parents for their child's scholastic success, and consequently their approval of responses in this direction are, if anything, stronger than among middle-class whites. The following comments of a middle-class Negro child are characteristic of their findings: "My mama even made me go to school the morning of the Mardi Gras. If it is raining hard and we say we are sick, we still got to go, if we have to go barefoot. A son of a friend of my mama's quit school and got married, and my mama is still lecturing on it." The mother herself stated, "One thing we are trying to do is bring all our girls up to be nice and decent, and get them a good education, so they can be somebody" (23).

Other middle-class children and their mothers made similar comments to the investigators in this study: "Because of my own educational background, and my husband's profession, I tell my children they have no excuse not to do well in school." "Even if I have to go out and work, I won't let my children stop school" (23).

On the other hand, Negro parents of the lower socioeconomic class seem even more pessimistic about the advantages of education for their children than lower-class white parents. Davis and Dollard (23) point out that the parents and teachers of the lower-class Negro child both realize that the child's chances of improving his social position are slight. Because of his discriminatory caste position as a Negro, few jobs are available in the broad middle range between laborer and professional person; and because of his family's economic status the chances of achieving professional status by finishing high school and college are remote. This realization, of course, is conveyed to the children.

Peer-Group Influences on Motivation

As we have already seen, one of the pressing needs of school children is to gain acceptance by their peers. Depending upon the particular

values of the peer group, the child's motivation for scholastic success may be either strengthened or reduced. In many middle- and upper-class groups, scholastic success—or at least the absence of scholastic failure—is positively valued and explicitly rewarded, not only by teachers and parents, but by the children themselves. Thus, in a number of studies involving primarily middle-class children (13, 14), for example, the children who were most popular in school were better students and were more conforming and cooperative. Lower-class, and particularly slum children are not likely to be rewarded either by parents or peers for scholastic achievement, as many discouraged teachers from marginal area schools can readily testify.

As Davis (22) points out, "Whereas the middle class child learns a socially adaptive fear of receiving poor grades in school, of being aggressive toward the teacher, of fighting, of cursing, and of having early sex relations, the slum child learns to fear quite different social acts. His gang teaches him to have a fear of being taken in by the teacher, of being a softie with her. To study homework seriously is literally a disgrace. Instead of boasting of good marks in school, one conceals them if he ever receives them" (22).

The Philosophy of Immediate Gratification

Davis argues that the most urgent problem before the public schools at the present time is "to learn the motivational structure of lower-class children and adolescents" (22). He points out that many of our elementary school pupils have been trained in lower-class families and neighborhoods; and that a sizable minority of our school population comes from the bottom group within the lower class, the slum culture.

Most teachers at least have an implicit recognition of the principles of learning. They realize that a child will not learn unless his needs are taken into account and unless he is rewarded when he makes the proper responses to the school situation. Unfortunately, however, many teachers assume that the fundamental needs in any group of 6- or 7- or 8-year-olds are pretty much the same for all children regardless of social class. Actually, of course, they are not.

Thus the kinds of universal needs that some teachers are likely to attribute to all children will in most instances be their own middle-class needs, and hence appropriate to middle-class children. However, lower-class children are not likely to respond to appeals to middle-class needs in the way the teacher would predict. Hence she is likely to become hurt, bewildered, or angry.

Teachers frequently appeal to children on the basis of future rewards. To a certain extent, all education involves getting children to extinguish old ways of doing things in favor of new ones, through implicit assurance that these new ways will ultimately prove more rewarding. Such an approach may work well enough with middle-class children, because they have had prior opportunities to learn from their parents and from their own experience that moderation and foresight are ultimately rewarding. They are able to trust to the future because the future has for them been predictable.

As we saw in Chapter 11, the past experiences of most lower-class children lead them to learn a philosophy of immediate gratification. Thus, given the choice between playing with the gang on a spring evening or studying so that they will receive good grades in school (which will ultimately lead to other rewards), they are more likely to choose the former.

Socioeconomic Status and the Curriculum

It has also been argued that lower-class children do more poorly in their studies because the curricula of our schools have been planned in a way that favors middle-class children. For example, educators may attempt to select reading matter in the primary grades that will relate to the daily life of the children, and thus be more interesting. But actually the activities discussed in these readings often typify the daily lives of middle-class and not of lower-class children. Many of the types of incidents depicted would be about as familiar to the average slum child as a description of Samoan boyhood to a middle-class New Yorker. Reading lessons in which the child's job is "to learn to decode someone's thoughts about a cat, a grandmother, a circus, or a trip to the country" are likely only to "seem foolish to the lower-class child because the experiences appear unreal, the words strange" (22).

Many stories dealing with typically middle-class experiences must seem equally unrealistic. Thus elaborate tales about extensive preparations for a new baby in the family, the mother's trip to the hospital, the long wait for a homecoming, and the fanfare which accompanies it, may seem strange to the slum child, who, the night before, has been briefly sent out of the house while his mother delivered her latest baby in her own bed. Moreover, much of the subject matter of these textbooks is easier for the middle-class child to master because of his greater experience with similar sorts of problems or content areas. Reading, counting, spelling, drawing, or the development of verbal fluency may come more

easily to the middle-class child, because of his family's greater interest in and reward for these and related activities. Practical activities that lower-class children are more likely to be familiar with on the basis of previous experience are rarely stressed in most school curricula.

In brief, there seems little doubt that current academic curricula do favor the middle-class child. In addition, the fact that he cannot meet the demands of the school environment as easily as the middle-class child often makes the lower-class child feel discouraged about the whole matter of formal education.

PHYSICAL DEVELOPMENT IN RELATION TO SCHOOL ACHIEVEMENT

We have already noted that variations in rates of physical development and in general health may be related to the child's social and emotional adjustment in the middle years. But are they also related specifically to school adjustment? For example, do handicapped children in fact receive poorer grades than their physically normal peers, as might be expected? Are they seen as special problems by their teachers? Do children with good general health perform better on school tasks than their less healthy peers?

A number of studies have investigated the relationship between physical development, defect, and disease, on the one hand, and measures of academic achievement and intelligence on the other. (As we shall see later, intelligence as measured by standard intelligence tests is closely related to success in schoolwork.)

Physical Development, Intelligence, and Academic Success

It is well known that in certain types of mental deficiency such as cretinism, the arrested physical growth is accompanied by mental retardation. There also seems to be a slight relationship between physical and mental development among physically normal children (42). In two of the best studies in this area, positive relationships were obtained between intelligence and a number of physical measures at all ages from 2 to 17 years (1, 10). These correlations were not large, however, the greatest (between height and IQ of boys) being only .26. Intellectually gifted children tended to be superior throughout the growth period in physical development (height, weight, age of walking, and general health), and also in school grades and achievement test scores (86, 87, 89).

Positive relationships between physical status and intelligence may be

explained in a number of ways. For example, it is possible that intelligence and development are positively correlated because they are both the result of the same genetic factors. It is also possible, however, that environmental factors such as a well-to-do home background may favor both superior intellectual performance and greater physical development (i.e., better diet, medical care, etc.). The child from such a home may have a better chance on intelligence tests, because of his cultural advantages. At the same time he may also have a superior physical development because of better diet, more sanitary living conditions, and better medical care.

Whatever their sources, it seems that within the normal range there are slight, but nevertheless statistically significant relationships between such physical measures as height and weight, and such academic measures as school grades, and achievement and intelligence scores.

Physical Defect and Disease in Relation to Academic Success

Several investigators (9, 42, 58) have demonstrated an inverse relationship between physical defect, disease, or nutritional deficiency and school achievement. One researcher (9) divided 3,304 school children into three groups, on the basis of academic achievement: bright, normal, dull. Percentage incidence for physical defects for each group was then computed. The results are shown in Table 3 (9). As may be seen, the

TABLE 3. Percentage Incidence of Physical Defects in Three Groups (9)

	Bright	Normal	Dull
Defective teeth	34	40	42
Adenoids	6	10	15
Enlarged tonsils	12	19	26
Enlarged glands	6	13	20
Defective breathing	9	11	15
Defective vision	29	25	24
Other defects	11	11	21
Average number of defects per child	1.07	1.30	1.65

average number of defects per child is greatest among children with the poorest achievement.

Similar results have been found by other investigators. In one study (58), the relationship between average IQ at a number of schools in New York City and the percentage of students in each school having

various physical defects was investigated. The subjects were fifth-grade children. Negative relationships between IQ and physical defects were found when school averages were compared ($-.50$ for defective teeth, $-.40$ for visual defect, and $-.28$ for malnutrition).

In another study, 40 boys and 40 girls from regular third-grade classrooms and 58 children from special classes (i.e., mentally retarded but educable) were classified into low, average, and high IQ groups—mean IQ's of 71, 103, and 120, respectively (48). Their height, weight, strength of grip, number of permanent teeth, and bone development in hand and wrist were measured, together with their achievement in reading, arithmetic, and language. A low level of physical development in boys was accompanied by low achievement in arithmetic and reading, but there was no relationship between rate of physical development (e.g., height, weight, dentition) and academic achievement for girls (48).

Such results as these demonstrate that physical defect, physical retardation, and general health tend to be associated with lowered school achievement, at least for boys. Again, however, they do not establish the relationship as a causal one. It has been found, for example, that children from lower socioeconomic groups tend both to have a higher incidence both of inadequate health and poor school progress. Thus it is possible that the negative relationships obtained between defect or disease and school achievement may not stem from the handicapping effect of the condition itself. Instead, both the defect or disease and the poor school progress may be functions of membership in a lower socioeconomic class, with its poorer conditions of diet and hygiene, and its cultural discouragement of school success.

Support for the hypothesis that social-class variables may be largely responsible for obtained relationships between defect or disease and intelligence may be gained from other studies in this area. In general, they indicate that when socioeconomic factors are controlled (i.e., by studying the effects of variations in health within each social class), impressive correlations between physical condition and intelligence tend to disappear. Thus it appears likely that defect and intellectual achievement tend to covary, not so much because one determines the other, but rather because both are the result of factors associated with social class.

An exception to this general conclusion appears in the case of markedly defective and severely undernourished children who, regardless of their social-class background, tend to perform more poorly on intelligence and achievement tests. In one investigation, the effects of nutritional status on achievement were studied experimentally (32). The subjects, 110

children in a Virginia orphanage, were divided into two groups of 55 each, carefully matched for sex, height, weight, length of residence in the orphanage, educational achievement, and intelligence test scores. The diet of one group was then supplemented by 2 milligrams of vitamin B-1 (thiamin) daily in tablet form. The other group received tablets of no nutritional value. The children themselves had no way of knowing whether they were receiving vitamins or not. Nevertheless, at the end of one year, the group receiving thiamin was better than the control group in a number of measures, such as reading achievement, memorizing of new materials, and general educational progress. Thus, in this instance, improved nutritional status clearly resulted in academic progress. However, since we do not know the initial nutritional levels of these children, we cannot say with any certainty whether these results support the general finding that only marked deficiencies in diet affect achievement (32).

Articulation Difficulties and Physical Defect

We have seen that gross measures of school achievement are associated with poor health history. Difficulty in articulation of speech is a more specific defect that interferes with effective school performance and it appears to be related to problems in physical development. In one study (27), 70 first-grade children who had severe difficulty in speech articulation were matched with an equal number of normal children of the same grade, sex, IQ, and neighborhood. The mothers of these 140 children were interviewed in their homes about their child's history since birth. Compared with the normal group, the children who had articulation problems were more likely to have experienced (1) an abnormal or difficult birth, (2) a large number of diseases during the first three years of life, and (3) retardation in walking and talking. There were also some characteristic psychological events that were more frequent in the early histories of the children with articulation problems. They were weaned and toilet-trained earlier than the normals and, therefore, were probably subjected to more severe socialization pressures. Since speech handicaps are likely to interfere with adequate school performance, it is not surprising that these children were doing poorly in the first grade.

In reviewing the research studies in this general area, several facts seem to stand out: (1) Relationships have been found between a number of physical measures (such as height, weight, disease, defect, or malnutrition) and the child's adjustment to school. (2) While in some cases these relationships may partly reflect the influence of the child's physical condition upon his behavior, in most cases they also indicate that other

factors are at work, producing covariation of both physical and psychological measures. Several of the more important among these factors are genetic influence, socioeconomic status, and home background.

THE MEASUREMENT OF INTELLIGENCE

With the beginning of school, all children in our culture begin to be compared to one another with respect to a wide range of human abilities, aptitudes, and personality traits. Parents and others may have noted prior to this time that a particular child walked, talked, or was toilet-trained sooner than other children. Casual observations that one child appeared friendlier, more aggressive, brighter, or more handsome than his peers may also have been made.

But only with entrance to the first grade do such comparisons become an explicit part of our culture, affecting the welfare of all children. The explicit character of these comparisons is reflected by grades in academic subjects; ratings of physical prowess; marks for effort, interest, or personality traits; and by health records dealing with physical disease and defect.

In the last chapter, we noted that gross impairment of vision, hearing, or available energy often may not be picked up until after a child enters school. No doubt this may be attributed partly to the fact that the parents' standards are less rigorous than those of the school. But it may also be attributed partly to the individual parent's lack of comparative yardsticks with which to evaluate his child's ability and partly to habituation. Johnny's defective vision may lead to squinting, to a perplexed manner, even to bumping into things at times. To the teacher or school nurse such symptoms may suggest impaired vision. To Johnny's mother they may just seem like Johnny, being his natural self.

For similar reasons, the topic of intelligence assumes major importance in the eyes of parents at about the time their children begin school. Johnny's retarded or precocious intellectual ability is likely to be taken for granted by his parents until he starts school. Then suddenly it becomes for them something which Johnny has more or less of than his peers, something which spells future ease or difficulty in school achievement, something which leads to society's (i.e., the teacher's) approval, disapproval, or anxious concern.

As a result, the parent suddenly develops an interest in various problems of intellectual functioning. "What," he begins to ask, "do you actually mean by the term intelligence?" "What does an IQ of 80 mean?" "Can

you tell whether a 6-year-old child will be able to go to college when he grows up?" "Does heredity play an important role in intelligence?" "How good are IQ tests anyway?" All of these are legitimate questions, and their answer is not simple, even for the specialist in psychological measurement.

The Meaning of Intelligence

Let us consider briefly the first of these questions, "What do we actually mean by the term intelligence?"

It is characteristic of people to think that because many words stand for *things*, all words necessarily do. The idea is nevertheless false. Many words, such as the concepts of time and force in physics, are simply useful scientific fictions (i.e., hypothetical constructs) which help us to explain observable events. But they do not stand for objects or classes of objects in the way many other words, such as trees and chairs, do.

In the same way, no one has ever seen, heard, or touched *intelligence*. It too is a scientific fiction which we invent because it helps us to explain and predict behavior.

The layman makes judgments about intelligence from observations of everyday behavior. For example, two boys may be in the habit of playing in a neighbor's yard. The neighbor hears that one of them is a good student in school, the other a poor one. She also observes that if she asks the "good student" to go to the store for her, he always remembers to bring home all the items she asks for; the other boy is likely to forget several items. Furthermore, she hears the boys playing counting games, or discussing the way in which various objects are made, and watches them as they go about their various activities. The same child always seems to do better. From this she concludes the one child is more "intelligent" than the other.

It can be seen from the above example that since intelligence is inferred from overt behavior, and since different individuals may choose to draw their inferences from different kinds of overt behavior, there is no absolute or "true" definition of intelligence. The word may be defined in terms of the preferences of the individual doing the defining. For example, Terman, an American pioneer of mental testing and developer of the Stanford-Binet Intelligence Test for children, chose to define intelligence as an individual's ability to carry out abstract thinking, to use abstract symbols in the solution of all kinds of problems (88).

On the other hand, Wechsler, inventor of the widely employed Wechsler Intelligence Scales for children and adults, preferred to define

intelligence as "the aggregate or global capacity of the individual to act purposefully, to think rationally, and to deal effectively with his environment" (94, 95). Nevertheless, the definitions of most psychologists tend to be rather similar. In general most psychologists would agree with Goodenough that intelligence involves the "ability to profit by experience . . . in order to adjust to new situations" (28). They have often disagreed, however, about the proper selection of items to measure these abilities. The reasons for these arguments may be clarified by a discussion of the actual methods of constructing intelligence tests, and of their uses and limitations.

The Construction of Intelligence Tests

Intelligence testing had its real beginning in Paris in 1904, and evolved out of practical necessity. At that time:

The schools of Paris became concerned about their many non-learners and decided to remove the hopelessly feeble-minded to a school where they would not be held to the standard curriculum. Aware of the errors in teacher judgment, they wished to avoid segregating the child of good potentiality who could learn if he tried and the trouble-making child whom the teacher wanted to be rid of. Moreover, they wished to identify all the dull from good families whom teachers might hesitate to rate low, and the dull with pleasant personalities who would be favored by the teacher. Therefore they asked Alfred Binet, a prominent French psychologist, to assist in producing a method for separating the genuinely dull from those who had adequate educability. The Binet Scale, which drew on his earlier studies, was published in collaboration with Simon in 1905. In 1909 a revision was published. The tests were arranged in order of difficulty so that a child passing those tests normally passed by ten-year-olds could be considered their mental equal in average performance. Still another revision was produced in 1911. The Binet Scale, as it stood then, differs only in detail from the individual tests for children in widest use today (21, 103).

One of two most widely used intelligence tests for children at present is the Stanford-Binet (88), a revision of the earlier Binet test produced in 1916, and modified in 1937 and 1960 (90) by Lewis Terman and Maud Merrill of Stanford University. There have been several other revisions of the Binet Scale, but Terman's had proved the most fruitful. A discussion of the construction of the scale should serve to give us some insight into the construction of intelligence tests generally.

Construction of the Binet Scale

Binet did not start with a preconceived idea of an entity called intelligence. He started with the fact that on a number of kinds of tasks, some children seemed capable of doing better than others. He further ob-

served that children who did better on one type of test were also likely to do better on others. From these observations he derived a generalized concept of intelligent behavior. He also assumed that individuals differed in their innate capacity for such behavior. His job was to find measures of intelligent behavior which were relatively independent of special training and experiences, and differences in motivation; and which would therefore reflect differences in native potential. An additional requirement of the job was to arrive at objective scores which would show the relative ranks of individuals on a continuum from bright to dull.

Selecting Test Items

In selecting items to differentiate bright from dull individuals, Binet and his successors were guided by several considerations:

1. Since mental ability presumably increases with age, a good test item should be one that is passed more frequently by older children than by younger ones. With this consideration in mind, potential test items were tried out by actually determining the percentage of children at each age level that could pass them. A good test item, according to this criterion, is one that an increasing number of children are able to pass with each increasing age level. A poor test item is one that fails to discriminate significantly between younger and older children. Such an item would be thrown out as unrelated to the growth of mental ability (21).

2. Since Binet and his successors were interested in finding a generalized measure of intelligence, they felt that a good item was one that correlated highly with other items.

3. A number of other considerations employed in selecting items are cited by Terman in his discussion of the 1937 revision of the Binet (88): The test items should be reasonably easy to administer and score. They should sample a wide variety of tasks, so as to be representative of general ability, and, in so far as possible, they should reflect cultural experiences common to all children.

Items which meet the above criteria are then placed in the scale "according to their difficulty for children at each age. A test item which about 60 percent of 13-year-olds can pass is placed at year 13 on the scale" (21).

The final form of the Stanford-Binet includes a wide variety of items including measures of information and past learning, verbal ability, perceptual-motor coordination, memory, perception, and logical reasoning. For example, at the sixth-year level in the 1960 revision of the test, the child must define at least six words, such as orange, envelope, and puddle;

state the differences between a bird and a dog, a slipper, and a boot; recognize parts that are missing in pictures of a wagon, a shoe, a rabbit; count up to nine blocks; and trace the correct path through a maze. (For sample test items at an earlier age level, see p. 256.)

Administration and Scoring of the Binet

After establishing a comfortable relationship with the child to be tested, the examiner begins with items which are below the expected level of the child and gradually proceeds to those of greater difficulty.

The test is scored in terms of mental age, determined as follows: First, a *basal mental age* is established. This is the year level on the scale at which the child can pass all the test items. For example, a 10-year-old who passed all the items scaled at year 9, but failed some items at year 10, would receive a basal mental age of 9 years. The examiner would then proceed to add to this basal age when items of higher levels are passed. The amount added will depend on the total number of higher items correctly answered. The examiner stops when he reaches an age level at which all items are failed. To illustrate, if the 9-year-old in the above example passed half the items at year 10, one-fourth of the items at year 11, and no items at year 12, he would receive six months credit at year 10, three months credit at year 11, and zero months credit at year 12. Adding these scores to his basal age, he would receive an over-all mental age of 9 years, plus 6 months, plus 3 months, or 9 years 9 months.

Since the particular items a child is given on the Binet will depend on the range of his ability, the same items are not given to all children. The test has been developed to cover the years from 2 to adulthood. While some of the items given normal 4- and 5-year-olds would overlap, normal 5- and 12-year-olds would be given completely different items.

Intelligence Quotients

We have already mentioned the term Intelligence Quotient, or IQ. On the Binet the IQ is simply a ratio of mental age over chronological age multiplied by 100:

$$IQ = \frac{MA}{CA} \times 100$$

Thus a child of 10 years zero months who obtained a mental age of 10 years zero months on the Binet would be given a score of $\frac{10.0}{10.0} \times 100$, or an IQ of 100. It can be seen that an IQ of 100 will be characteristic of

the average child from the group on which the test is based. The 10-year-old previously described, whose mental age was 9 years 9 months, would receive an IQ of $\frac{9.75}{10} \times 100$, or 97.5.

DISTRIBUTION OF IQ's. Figure 44 shows the distribution of IQ scores for the population used in standardizing the Stanford-Binet. As may be seen, the distribution centers around IQ 100, with higher and lower IQ's about equally common. Table 4 shows the percentage of individuals at each IQ level, and is probably the most helpful guide to understanding the meaning of a particular score.

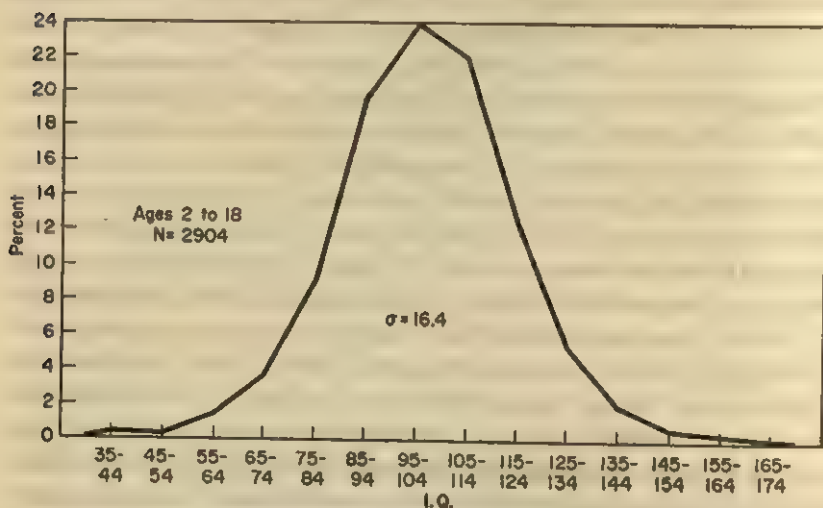


FIG. 44. Distribution of IQ's in the Terman-Merrill standardization group. (From Terman and Merrill, *Measuring intelligence*. Boston: Houghton Mifflin, 1937. With permission of the publisher.)

CONSTANCY OF THE IQ. The practical utility of an intelligence test score will depend partly upon its stability or constancy; that is, upon its ability to yield similar scores on future retestings. How confidently can we predict that a child who obtains a superior score at one age will also obtain a comparable score at a later age? It will be recalled that tests given to infants under 2 have little value for the prediction of future intelligence scores. Tests given to older children are more highly predictive.

Table 5 shows the correlations between intelligence test scores during the middle-childhood years and at ages 10 and 18. As may be seen, dur-

TABLE 4. The Meaning of Various IQ's Obtained with the Revised Stanford-Binet Scale

The child whose IQ Is:	Equals or Exceeds	The child whose IQ Is:	Equals or Exceeds
136	99 percent	98	45 percent
135	98	97	43
134	98	96	40
133	98	95	38
132	97	94	36
131	97	93	34
130	97	92	31
129	96	91	29
128	96	90	27
127	95	89	25
126	94	88	23
125	94	87	21
124	93	86	20
123	92	85	18
122	91	84	16
121	90	83	15
120	89	82	14
119	88	81	12
118	86	80	11
117	85	79	10
116	84	78	9
115	82	77	8
114	80	76	8
113	79	75	6
112	77	74	6
111	75	73	5
110	73	72	4
109	71	71	4
108	69	70	3
107	66	69	3
106	64	68	3
105	62	67	2
104	60	66	2
103	57	65	2
102	55		
101	52	64	1
100	50	63	1
99	48	62	1

SOURCE: Reprinted from *Supplementary Guide for the Revised Stanford-Binet Scale* (Form L) by Rudolph Pinter, Anna Dragositz, and Rose Kushner. With permission of the Stanford University Press.

TABLE 4. The Meaning of Various IQ's Obtained with the Revised Stanford-Binet Scale (*Continued*)

The child whose IQ is:	Is equaled or excelled by
160	1 out of 10,000
156	3 out of 10,000
152	8 out of 10,000
148	2 out of 1,000
144	4 out of 1,000
140	7 out of 1,000

ing the middle school years, the correlation between Stanford-Binet test scores given one or two years apart (for example, at ages 8 or 9, and again at 10) is a very high (around .90). Moreover, tests given during this period are fairly good predictors of intellectual status in early adulthood (age 18). Nevertheless, despite the fact that the IQ becomes more stable at later ages, we must be cautious in using test scores for predicting the future status of individual children, since "the correlations are not sufficiently high so that the possibility of marked changes in the IQ's of individual children is precluded" (36). Repeated testings of a large group of children between the ages of 6 and 18 revealed that the IQ of over half the children "showed a variation of 15 or more points . . . at some time during the school years, and a third of the group varied as much as 20 points . . ." (36).

THE USEFULNESS OF IQ'S. What do we actually know when a child obtains an IQ of, for example, 132 on the Stanford-Binet? At the very least, we know that he can do the items on this test better than 97 per cent (see Table 4) of the large group of persons of his age on whom the

TABLE 5. Correlations Between Stanford-Binet IQ During the Middle-Childhood Years and IQ at Ages 10 and 18 (Wechsler-Bellevue)

Ages	N	Correlation with IQ at Age 10	Correlation with IQ at Age 18
6	214	.76	.61
7	208	.78	.71
8	199	.88	.70
9	90	.90	.76
10	107	—	.70
12	92	.87	.76

SOURCE: After (36). With permission of *Journal of Experimental Education*.

test was standardized. And we know that these items are probably representative of a large variety of tasks commonly met by people in their daily lives. In this sense, the authors of the test feel justified in calling it a measure of *general intelligence*. But how useful is such knowledge? Few teachers, for example, are particularly interested in whether a child can do the particular tasks on the Binet. They want to know if he will be able to do satisfactory work in reading, writing, and arithmetic.

The only way of settling the question is by examination of the actual relationship between IQ and school success. In general, IQ scores have been found to be fairly good predictors of academic performance. One investigator (12), for example, lists the following correlations between the Stanford-Binet Intelligence Test and school grades:

IQ and reading comprehension	.73
IQ and reading speed	.43
IQ and English usage	.59
IQ and history	.59
IQ and biology	.54
IQ and geometry	.48

The fairly high relationship between school success and IQ scores may be partly attributed to the similarity of the kinds of behavior measured in both cases. And indeed, when it comes to predicting success in less academic fields, such as mechanical trades, music, and art, the intelligence test does a much less adequate job.

Other Types of Intelligence Tests

Next to the Binet, the Wechsler Intelligence Scale for Children, or WISC (95), is probably the most frequently used test for older children. The IQ's for children from 5 through 15 years may be derived from this test. While on the Binet children are given different items at the various age levels, on the WISC the items are the same for children of all ages. Also on the WISC, mental age is not used in deriving an IQ. Instead, the child's performance is compared with that of other children in his own age group. His IQ is merely a function of his percentile rank in comparison with his peers. To illustrate, let us say that a child of 6 obtains a WISC IQ of 79. This simply means (if one consults the appropriate table in the WISC manual) that this child has done better on the test than about 10 percent of 6-year-olds in the standardization group and less well than about 90 percent.

The most important difference between the Binet and WISC is that the

latter has special sets of tests for verbal in contrast to perceptual organization skills (often called performance tests). Thus, the child's score on five language tests yields a *Verbal Scale IQ*. Similarly, the score for five perceptual organization tests allows the psychologist to compute a *Performance Scale IQ*. The five verbal tests measure general information; comprehension of judgment regarding everyday situations; vocabulary, arithmetic skills, and reasoning. The perceptual organization and performance tests include various puzzles, speed of performance on a simple copying task, comprehension of pictorial representations of situations, construction of complex designs from blocks (which requires conceptualization of spatial relationships), and recognition of missing elements in pictures. One of the advantages of the WISC over the Binet is that the child's differential ability in verbal and nonverbal areas can be assessed objectively.

Despite the differences in test items and method of computing the IQ, Binet and WISC IQ's tend to be highly correlated (64). In general, the WISC is somewhat easier to administer and score than the Binet. Which of these two tests (if either) will ultimately prove more fruitful must



FIG. 45. Adminstrating the Wechsler Intelligence Scale for Children. (With permission of The Psychological Corporation.)

await future research. At present, both seem to be useful tests. The Binet is used more frequently for younger children (ages 3-6), and the WISC for older children (ages 7-12).

GROUP TESTS OF INTELLIGENCE. The intelligence test described thus far must be individually administered. There are, however, a number of group tests available for use by teachers and others. Such tests have the advantages that they do not require intensive training to administer and that they are economical of time.

On the other hand, they also have serious limitations. The results they yield are not so useful for prediction as those from individual tests administered by a skilled clinician. Practical decisions about children who deviate on these tests should not be made without individual follow-up testing by a competent psychologist, together with an investigation of other factors within the individual's life which may be affecting his performance (including his general health and sensory functioning). Too frequently erroneous diagnoses of mental deficiency have been made on the basis of low scores on group intelligence tests.

Tests of Reading Readiness

There is another group of tests which deserve mention in connection with a discussion of children's intelligence and school adjustment; namely, tests of so-called reading readiness (21, 61, 62). While not in themselves measures of intelligence, the readiness tests correlate quite highly with IQ scores (59). They have been designed, however, for a much more specific purpose, namely, to gauge the proper time for the child to begin reading instruction, and also to detect possible difficulties which may be holding the child back in learning to read. These aims have been achieved remarkably well, and for this reason the tests have been widely adopted in elementary school programs. Parents are likely to hear a good deal about readiness tests at the time their children are beginning school.

The Reading Aptitude Tests (Primary Form) designed by Marion Munroe (62) will serve to illustrate the contents of readiness tests in general. Included in her battery are visual tests (designed to measure orientation of forms, ocular-motor control, and visual memory), auditory tests (including measures of pronunciation, discrimination of sounds, and auditory memory), language tests, articulation tests, and tests of motor skills (including both speed and steadiness).

From an over-all knowledge of a child's competence in these basic skills, it is possible to establish with considerable accuracy how well the child

will do in learning to read. Table 6 shows the relationship between readiness test scores and subsequent achievement in reading obtained in one study.

TABLE 6. Predictive Value of Monroe Reading Aptitude Tests

Composite total percentile score on aptitude tests	Percent of Children Who Became		
	Superior readers (upper quartile of reading tests)	Average readers (middle half of reading tests)	Inferior readers (lower quartile of reading tests)
90	100%	0%	0%
80	100	0	0
70	42	50	8
60	31	56	12
50	24	67	10
40	8	46	46
30	0	12	88
20	0	25	75
10	0	0	100
0	0	0	100

SOURCE: From Monroe (61). With permission of Houghton Mifflin Co.

Like tests of general intelligence, reading readiness tests have proved their value. As in the case of intelligence tests, performance on reading readiness tests may be influenced by a wide variety of factors, ranging from heredity to socioeconomic status. For example, in one study Milner (59) found that children from the lower socioeconomic class tended to do more poorly on a first-grade reading readiness test than upper-class children. Milner attributed the results to cultural differences in practice and reward of related behavior. For example, the predominantly upper-class "high scorers" tended to engage in considerable two-way conversation with their families at breakfast, before school, and at supper. They were also the recipients of a good deal of overt affection from their parents. The "low scorers," on the other hand, did not characteristically eat breakfast with their parents, engaged in little conversation before school, and did not participate in two-way conversations at supper time. It seems likely that differences in background experience, such as greater encouragement of verbal accomplishment in the upper-class, play an important role in the lower reading potential of lower-class, as compared with upper-class children.

Thus reading readiness tests must be employed in a flexible fashion, with full awareness of the kinds of factors which may affect the scores

obtained. It should not be automatically assumed that a child from an extremely deprived cultural background is incapable of learning to read, simply because he fails a reading readiness test.

Criticism of Current Intelligence Test Practices

While intellectual functioning may be influenced by hereditary factors, this does not mean that a person's score on an intelligence test is a direct measure of his native capacity. Unfortunately, however, many people seem to think that it is. Such a process of reasoning has serious practical implications. It may lead a teacher to lose interest in a child who receives a low score on an IQ test, while concentrating all her efforts on "bringing out the best" in the high-scoring child who she thinks has greater "potentialities for development."

Such practices have recently come in for bitter attack from Davis, Havighurst, and others (22, 34, 35). An IQ score is the product of many forces, including the child's motivation to do well on a test of intellectual skills, parental encouragement of intellectual competence, and his familiarity with the language and problems used in IQ tests. Davis points out that intelligence can be inferred only from the specific "mental acts" which constitute the pupil's responses to intelligence-test problems. And these mental acts in turn will be a function, not only of an individual's heredity, but also of:

C— Cultural phenomena, involved in the pupil's degree of experience, in his family or play-group, with that particular social environment which determines both the content and the symbols of the test problem.

C—1 Training phenomena in school and home, involving more specific, repetitive, and purposeful experience with cultural situations and symbols which are closely related to the test-problem.

C—2 Cultural motivational phenomena, or "drives," those rewards and punishments which exist at a level sufficient to impel a pupil to use his full pattern of activities to solve a test problem.

S— The phenomena of speed, which are complex functions of (1) the hereditary factors, (2) the physical condition and stamina of the testee at the particular time, (3) his cultural habits of work, (4) his familiarity with the cultural form and content of the problem, and (5) his previous experience or training with this specific type of problem.

The relative success of two persons in solving a given problem, therefore, depends not simply upon their hereditary equipment but also upon their relative familiarity with the cultural situations and symbols in the problem, their relative degree of training with similar problems, and the relative strength of their motivation. The factor of time may or may not be involved, depending upon whether the test is a "speed" test or not (22).

Thus, as Davis points out, if an intelligence test is going to be used to make inferences about the basic potentialities of individuals, the cultural elements in the problems employed must be equalized. In Davis' opinion, current test makers have not succeeded in doing this. He feels, for example, that in many instances the kinds of items selected for inclusion on intelligence tests are likely to be more familiar to middle-class children than to their lower-class peers, and are likely to appeal to them more. Thus he feels that intelligence tests unduly penalize lower-class children.

In a systematic effort to determine the nature of social-class differences in test responses on intelligence tests, Davis and Havighurst and their associates (22) administered a variety of intelligence tests to all children aged 9, 13, and 14 in a large midwestern city. The socioeconomic status of each pupil's family was also determined, by means of an objective index (22). It was found that a large proportion of the items in each of the intelligence tests discriminated between children from the highest and lowest socioeconomic levels, the latter passing a smaller percentage of items. Table 7 shows the percentage of items on each of the tests which showed a socioeconomic differential.

Davis feels that the way these social-class differences are distributed among the items supports his hypothesis of a cultural bias in the items

TABLE 7. Percentage of Items on Various Intelligence Tests Discriminating Between High and Low Socioeconomic Groups

Test	Number of Pupils		Percentage of Items Showing Socioeconomic Differential
	High Socioeconomic Group	Low Socioeconomic Group	
Tests given to 9- and 10-year-old pupils			
Henmon-Nelson	226	322	93%
Otis Alpha (nonverbal)	223	316	46%
Otis Alpha (verbal)	223	326	70%
Kuhlmann-Anderson (Grade III)	225	327	56%
Kuhlmann-Anderson (Grade VI)	225	321	85%
Tests given to 13- and 14-year-old pupils			
Terman-McNemar	223	361	100%
Otis Beta	235	364	91%
California Mental Maturity	235	352	69%
Thurstone Spatial	235	352	84%
Thurstone Reasoning	232	358	100%

SOURCE: From Davis (22). With permission of Harvard University Press.

employed. He notes that the items which were selected for these tests tend to emphasize "only those types of mental behaviors in which the higher and middle socioeconomic groups are superior" (22), such as linguistic skill. And even in the items selected to measure these skills, the specific content is more likely to be familiar to upper-class socioeconomic groups. For example, Davis discusses two items from one of the tests in the above study. On one of these items, 78 percent of the pupils in the higher socioeconomic group answered the item correctly, but only 28 percent of the pupils of the lower group did so—a difference of 46 percentage in points. On the second item, the percentage answering the items correctly was practically identical for both socioeconomic groups. The content of these two items suggested to Davis the reason for the great variation in their socioeconomic differential: "The first item required the pupil to be familiar with the term 'sonata,' a word which will clearly be heard more often in a home of the higher socioeconomic brackets than in a family from the lower socioeconomic group. The second item, on the contrary, required the pupil to apply the concept of a 'cutting tool' so as to distinguish between this type and several other types of implements. Both the tools and the other implements are common to all socioeconomic groups" (22).

According to Davis, the poorer performance of lower-class children on these tests is attributable not only to a cultural bias in the selection of items, but also to lesser motivation to do well in school or in school-type tasks, such as achievement and intelligence tests.

Davis' argument is a cogent one, for as long as middle-class children are generally more highly motivated to do well on an intelligence test, they will continue to obtain higher scores than lower-class children. Under these conditions it is difficult to discover whether, and to what degree, genetic factors play a role in producing the class differences in IQ score that are consistently found. If one is to attribute these differences, in part, to heredity, it is necessary that all the children taking the tests be equally familiar with the language and material of the items and highly motivated to do their best.

INTELLECTUAL PERFORMANCE IN RELATION TO PERSONALITY AND PARENTAL PRACTICES

Intelligence and Changes in Intelligence in Relation to Personality

Although, as previously noted, the IQ scores of 6-year-old children generally remain stable, the correlation between IQ scores at age 6 and

age 10 is only in the .70's, indicating that many children show significant changes in their IQ scores between these two ages. These changes are not random, but are related to general aspects of the child's personality, to his desire to master intellectual skills, and to his familial environment.

Investigators at the Fels Research Institute have made an analysis of changes in IQ and related these changes to personality variables (43, 80). Their subjects were a group of 140 boys and girls for whom annual IQ scores and behavioral observations were available. Graphs of the Stanford-Binet IQ scores of these children from ages 3 through 12 showed striking differences among children in the patterns of their scores. Some children's scores remained the same; others decreased; and still others increased. Figure 46 illustrates some of the individual curves which were obtained (80).

It may be noted that the scores of Case 64 hover around 90 with very little variation over time. On the other hand, Case 139 dropped steadily from an IQ of 140 at age 3 to an IQ of 110 at age 12. Case 2 gained 50 points during the same period; his IQ rose from 110 to 160. Approximately one-half of the group showed a stable IQ pattern with little change over the ten-year period. The other children showed either increases or decreases in IQ score.

What do these changes mean? Are they related to other aspects of the child's psychological functioning? From the total group of 140, the investigators selected 35 children who showed the greatest increase in IQ during the ages 6 through 10, and 35 children who showed the greatest decrease during these years. Ratings based on behavioral observations of these children at home and school during the first 10 years of their lives were then analyzed. A number of interesting discoveries were made.

Twice as many boys as girls showed large increases in IQ. Boys were more likely to gain in IQ score, whereas girls were more likely to lose in IQ. Compared with children who decreased in IQ, those who increased were, according to their behavioral ratings, more independent, more competitive, and more verbally aggressive. While there was no relation between the pattern of IQ changes and the degree of friendliness with age-mates, those who gained in IQ worked harder in school, showed a strong desire to master intellectual problems, and were not likely to withdraw from difficult problem situations. Apparently children who attempt to master challenging problems are more likely to show increases in IQ than children who withdraw from such situations (80).

As part of the research, these children were given a set of pictures (from the Thematic Apperception Test) and asked to make up a story

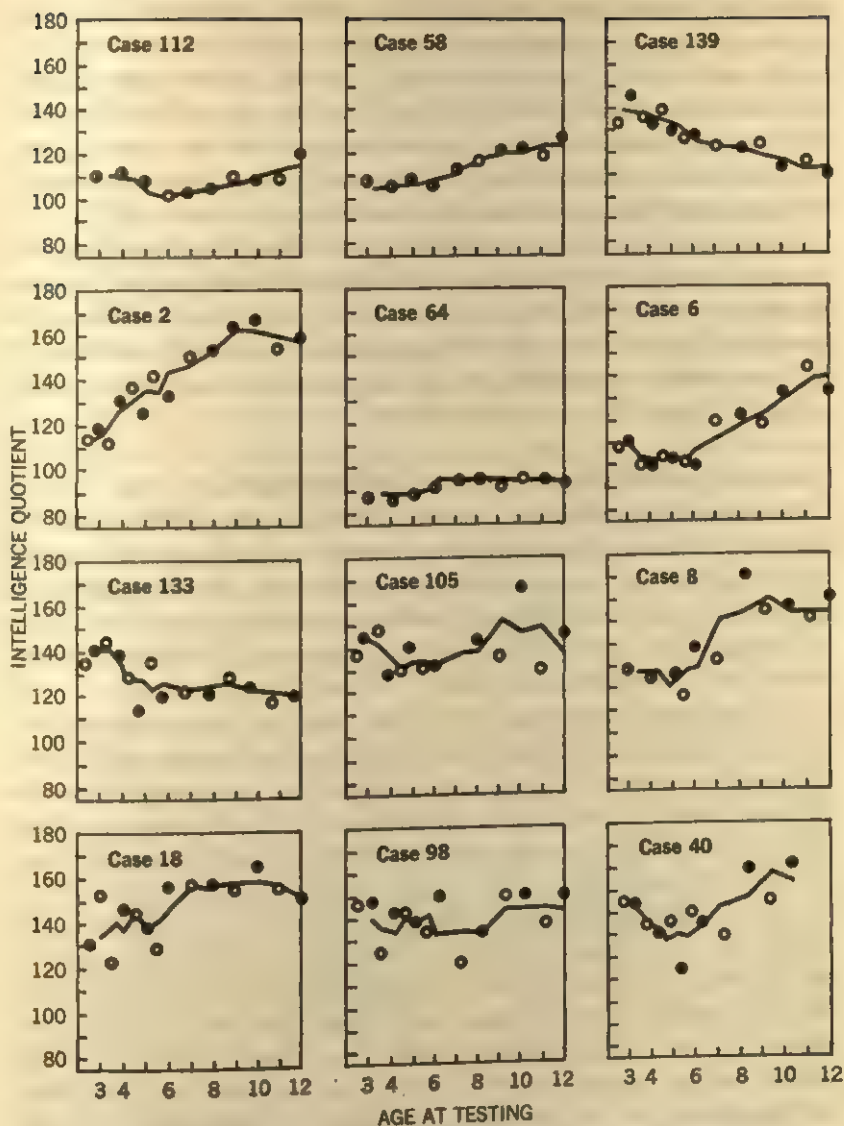


FIG. 46. Illustrative cases of variability of IQ scores. (From Sontag, L.; Baker, C.; and Nelson, V. Mental growth and personality development: a longitudinal study. *Monogr. Soc. Res. Child Developm.*, 1958, 23, No. 2. With permission of the Society for Research in Child Development.)

about each picture (43). Stories told by children who gained in IQ reflected a desire to be superior and to perfect talents and skills. For example, one picture in the series illustrated a young man on a rope. A child who showed an increase in IQ was apt to say something like, "He's in a rope-climbing contest and is trying hard to get to the top so he can win the race." The child who showed a decrease in IQ was more apt to reply, "He's escaping from prison and people are shooting at him" (43).

These results suggest that a child's IQ scores should be viewed, in part, as an index of his knowledge and intellectual skills and, in part, as a reflection of the strength of his desire to master intellectual problems. To the degree that the child's knowledge, problem-solving skills, and motivation can increase or decrease, his IQ can also increase or decrease significantly during the preadolescent years.

Parental Influences on IQ and Mastery of Intellectual Tasks

It appears that a child's IQ score is related, in part, to the desire to improve his knowledge and problem-solving skills. We would expect, therefore, that family experiences which encourage the development of this motive (i.e., desire to master intellectual problems) would also lead to higher IQ scores, and even, perhaps, increases in IQ during the early school years. Recent research tends to support this supposition.

The mothers of a group of Fels children were rated with respect to the degree to which they encouraged their children to talk and to walk during the first three years of life. (44). For the girls, there was a positive relation between maternal concern with the child's early developmental progress and the amount of IQ increase the girls showed during the years 6 through 10. The correlation for boys was positive, but much lower. The lack of a strong relationship between maternal encouragement of walking and talking and IQ increase in boys may be a function of sex differences in the degree of identification with the mother. Girls are more likely than boys to identify with the mother and hence, more likely to adopt her values. This finding suggests that, although a mother's concern for intellectual mastery influences both boys and girls, this effect may be greater for daughters than for sons. This interpretation is supported by the fact that, even though the relation between mothers' formal education and children's IQ is positive for both sexes, mothers' education is a better predictor of girls' than of boys' IQ scores at ages 3, 6, and 10 (44). For example, the correlation between maternal education and children's IQ at age 10 was .66 for girls, but only .39 for boys. If it is assumed that well-educated mothers are more apt than poorly educated ones to encourage

mastery of intellectual skills, it would appear that the mother's emphasis on perfecting intellectual proficiency influences both level as well as increases in IQ among girls.

The effect of maternal attitudes on the child's desire to master intellectual skills was also demonstrated in a study (97) in which 29 mothers of 8-year-old boys were administered questionnaires that yielded information on the number of demands they made upon their sons for independence and mastery behaviors. Some of these behaviors included (1) standing up for his rights with other children, (2) knowing his way around the city, (3) being willing to try new things without depending on his mother for help, (4) showing pride in his ability to do things well, (5) eating alone without help in cutting his food, (6) taking care of his clothes, and (7) doing well in school.

In addition, the investigator assessed how early in the child's life the mothers made these demands and the types of rewards they gave when the child fulfilled the mother's demands (e.g., hugging, kissing, verbal praise, a present). The boys were asked to make up stories from brief descriptions of various situations (e.g., "A mother and her son—they look worried," you finish the story; "A young man sitting at a desk," you finish the story; "A boy who has just left his house," you finish the story) (97).

The boys who told many achievement stories (e.g., a young man is sitting at his desk and is trying to study his homework so he can get an "A") had mothers who said they made relatively strong demands for independence and mastery early in the child's life (especially during ages 4-7). Moreover, mothers of boys who told many achievement stories reported giving more physical affection (kissing and hugging) as a reward for their child's independence and mastery than the mothers of boys who told few achievement stories. There was no relation between achievement stories and the mother's use of praise or gifts as a reward for independent behavior. Thus, the desire to master problems (presumably reflected in the boys' stories), which facilitates increases in IQ, appears to be associated with early maternal encouragement of independence in problem situations (97).

The positive relations among independent behavior, achievement motivation, and efficient intellectual performance were corroborated in a study of 76 gifted children who were followed from grades 3 through 9 (24). Children who scored high on tests of school achievement were less dependent and more competitive in their overt behavior than children

who scored low on these tests, even though all the children in this study were of high intelligence.

In another study of motivation for intellectual achievement, 20 boys and 20 girls from the first 3 grades were given a variety of tests and observed in a free-play situation. In addition, both the mothers and fathers were extensively interviewed (19). In the free-play situation, the children could choose from a variety of activities (e.g., reading, riding bicycles, building with blocks, playing house). The girls who showed an intense interest in intellectual activities (read books, worked at puzzles) had parents who encouraged intellectually oriented behavior. This relation was positive, but not as marked for the boys.

A similar study furnishes some specific hypotheses regarding the father's role in the development of achievement motivation in young boys (75). A group of 40 boys, 9 to 11 years of age, was divided into two sections; those who told many achievement stories and those who told few achievement stories. The investigator visited the home of each of these boys and asked the boy to perform some problem tasks while the parents were watching. The boys who told many achievement stories (high achievement motivation) performed more efficiently than those who told very few achievement stories (75).

In addition, the behavior of both parents toward the child was observed while he was performing the task. Characteristically, the mothers of high achievement boys were involved with their sons and identified with them. These mothers felt close to their sons, wanted them to be competent, and made demands for achievement. However, these demands were associated with a feeling of affection for the child. The fathers of these boys were not overly demanding and gave the boys autonomy and freedom. The boys who told few achievement stories had more demanding and authoritarian fathers who did not give freedom of action and mothers who were less affectionate. The data suggest that boys with low achievement motivation experienced greater degrees of rejection from both parents than the high achievement boys.

To begin with, the observer's subjective impressions are that the parents of a high achievement boy tend to be more competitive, more involved, and seem to take more pleasure in the problem solving experiments. They appear to be more interested and concerned with their son's performance; they tend to give him more things to manipulate rather than fewer; on the average they put out more affective acts. More objective data show that the parents of a boy with need achievement tend to have higher aspirations for him to do well at any given task, and they seem to have a higher regard for his competence at problem solving. They set up standards of excellence for the boy

even when none is given, or if a standard is given, they would expect him to do better than average. As he progresses they tend to react to his performance with warmth and approval, or in the case of the mother especially, with disapproval if he performs poorly (75, 215).

These specific relationships for boys cannot be generalized to girls. Information on the Fels children supports the conclusion that middle-class boys with mothers who are protective, affectionate, and encourage school achievement obtain good grades in school. The girls who do well in school, on the other hand, have mothers who are not overly affectionate and push their daughters toward independent behavior (20, 46).

Another investigation of the families of children whose schoolwork reflected strong achievement motives has yielded results similar to those described above. The investigators (50) employed a series of interviews with parents, teachers, and children to study the home backgrounds of 40 underachievers and 40 overachievers in academic work. Overachievers were defined as children whose scholastic achievement was "well above" what would have been predicted from their intelligence test scores. Underachievers were children whose achievement was "definitely below expectation" on the basis of their scores. In general, marked differences were found between the two groups.

Pride, confidence, affection, and interest of parents in their children as shown in instances in which parents read to their children, play with them, build for them, or attend school with them, appear to be in greater evidence for plus-achievers (overachievers) than for minus-achievers, (underachievers). On the part of children, there is a tendency among plus-achievers to respect their parents, to take them into their confidence, to be concerned about pleasing them, and to return the love their parents show.

Minus-achievers appear to have a comparatively limited place in the home. There does not appear to be so much exchange of affection, or mutual respect, desire to measure up to expectations. In fact even expectations appear limited for minus achievers . . . (50).

SUMMARY AND IMPLICATIONS. Increases in IQ score, a strong desire to master intellectual problems, and superior school performance appear to be facilitated by a parental emphasis on, and reward of, intellectual achievement and establishment of independence. Moreover, the desire to excel in intellectual skills is a highly stable phenomenon. The Fels longitudinal study revealed that the first five years of school furnished important clues to the child's later intellectual strivings, for the desire to master intellectual tasks becomes established during middle childhood. The child who did not develop strong achievement motivation by age 11 or

12 was not likely to change during adolescence. The Fels children who were concerned with intellectual competence during the early school years (e.g., were involved in schoolwork; worked on intellectual projects after school) pursued intellectual vocations and interests in adulthood (46).

In order to integrate the existing data into a tentative concluding statement, four factors appear to be crucial. The first two are that the desire to do well in school subjects arises largely from (1) the desire to please parents who encourage this motive, and (2) an identification with parents who are effective models for intellectual mastery. Thus, if a child is to adopt the desire for intellectual achievement, he must see the parent as nurturant and accepting and as a person who values intellectual competence for himself. If the parent is severely rejecting, the child will not be eager to please his parent and will not strive diligently in school. Moreover, the child will be reluctant to identify with a rejecting parent.

Third, the greater the parental emphasis on intellectual mastery, the stronger will be the child's motivation to master intellectual skills. A parent who is accepting but encourages popularity, beauty, or athletic prowess will not foster the development of a desire to excel in school.

The final important factor appears to be that an overpowering and excessively autocratic parent who is intellectually adequate may create feelings of inadequacy in the child, especially if the parent is of the same sex. The child is likely to feel that he can never be as powerful or as competent as the parent. Under such circumstances, the child may doubt his ability to succeed and he may withdraw from intellectual challenges. Furthermore, since IQ scores are influenced, in part, by the child's motivation to master intellectual skills, it appears that the personality and the attitudes of the parents play an important role in influencing the child's intelligence test score.

Anxiety and Intellectual Ability

The child's ability to solve problems efficiently and to acquire knowledge is influenced not only by his achievement motivation but also by his anxiety about intellectual activities. Many individuals have an unusually intense fear of failure; they doubt their ability to pass a test and to solve problems. For some, this anxiety can be so intense that it obstructs clear thinking and causes the child to withdraw interest from academic tasks. There are, therefore, many bright children who possess a strong desire to improve their intellectual skills but fail to do so. Strong anxiety and doubts about their ability interfere with their effectiveness on tests, cause

them to become easily discouraged, and, therefore, make concentration and new learning difficult.

Special questionnaires have recently been devised to measure children's anxiety—the degree to which children admit apprehension and fear in school and in other situations (17, 76). Some of the questions related to anxiety about school performance include: "Are you afraid of school tests?" "Do you worry about being promoted?" "Do you have butterflies in your stomach when you have to take a test?" "Do you worry a lot while you are taking a test?" "When the teacher says she is going to find how much you have learned, does your heart begin to beat faster?" Other questions were related to sources of fear that seem unrelated to school (i.e., nightmares, fears of the dark, fears of being hurt). Some sample questions included: "Do you get scared when you have to walk home alone at night?" "Are you afraid of things like snakes?" "Do you worry that you are going to get sick?" (76).

Although different scales have been used with different groups of elementary school children, similar results have emerged. First, boys obtain lower anxiety scores than girls. It is probable that girls are less embarrassed than boys about admitting that they are afraid and, therefore, obtain higher anxiety scores. It is also possible that girls are, in fact, more afraid of tests, snakes, and the dark.

Second, there is a low negative correlation between the child's anxiety over school tests and his IQ; the correlation averages about $-.20$ (76). That is, children who admit to fear and anxiety obtain slightly lower IQ scores than children who report low anxiety. There is a positive relation between admitting to anxiety over tests and general anxiety (e.g., anxiety over the dark, ghosts, illness), and children with high general anxiety scores also obtain lower IQ scores. Third, high anxiety boys perform less well in school and in tests of problem solving than low anxiety boys, but this relation does not hold for girls (76). Anxious boys apparently become more flustered in problem solving situations and their performance, therefore, is negatively affected (76).

The patterns of results indicates that the degree of anxiety the boy experiences exerts an important influence on the quality of his intellectual behavior. Anxiety is an uncomfortable feeling that can interfere with concentrated thought and with accurate solutions of problems. The failure to obtain similar results for girls is puzzling. This may be more a function of the inappropriateness of the measures used for girls than a reflection of a real difference in the vulnerability of the girls' performance to the crippling effects of anxiety.

SUMMARY OF RELATION OF IQ TO PERSONALITY AND FAMILY EXPERIENCES.

There is an intimate relationship between a child's IQ score, on the one hand, and his desire to master intellectual tasks, his anxiety over possible failure in test situations, and family rewards for and concern with intellectual competence on the other. Thus, personality and environmental factors play a vital role in the quality of the child's mental functioning.

How should the IQ score be viewed in the light of this discussion? This question can best be answered by first asking, "What use do we want to make of the IQ score?" If we are interested primarily in predicting the child's success in school subjects, then this test is the best instrument psychologists have devised, for it does a creditable job of predicting who is likely to obtain good grades in elementary school, high school, and college.

Educators have ordinarily not been interested in predicting nonacademic behaviors from IQ scores. For special skills, such as music or art, there are special tests that are more appropriate. The controversy over the meaning of the concept of the IQ is partly a function of the fact that some people assume there is a general factor of intelligence, measured by the IQ test, rather than a set of more specific talents. If Binet had viewed his test as an index of "academic potential" rather than "intellectual potential" there would probably be less controversy over the meaning of the IQ score.

GENERAL INTELLECTIVE PROCESSES IN THE CHILD

The discussion of intellectual ability has been focused, up to now, on the IQ test. This score, however, tells us little about the basic intellectual processes of the school-age child.

The Notion of Specific Abilities

A basic assumption underlying the use of most standard IQ tests is that there is a generalized aptitude that applies to all types of intellectual endeavor (perception reasoning, memory, problem solving). Many psychologists believe that this assumption is misleading. They argue that the child has a variety of intellectual skills, and it is both more accurate and more profitable to talk in terms of these specific aptitudes.

J. P. Guilford (29, 30), of the University of Southern California, suggests that there are at least five types of intellectual processes. These are called *recognition*, *retention*, *divergent thinking*, *convergent thinking*, and *decision making* (29, 30).

Recognition involves sensitivity to aspects of the environment, awareness of changes in external stimuli, and the ability to label or name the environment accurately. Retention, which is closely related to recognition, is the ability to remember or retain information.

Divergent thinking refers to the individual's facility in making a variety of hypotheses or hunches in problem situations (e.g., to arrive at several possible courses of action upon discovering that you are locked out of the house). Convergent thinking involves grouping divergent ideas into one unifying concept; for example, grouping all women who have children into the conceptual category of "mothers." Decision making refers to the ability to make a decision about a problem without persistent vacillation.

Guilford suggests that these five basic cognitive processes can be applied to different kinds of stimuli or problems with differing degrees of success. Some people are skilled with concrete objects; others fare better with numbers and letters that symbolize concrete objects; still others are most skilled with ideas and meanings. The mechanic, mathematician, and philosopher would be representative of three occupations involving optimal performance with different types of materials—concrete objects, symbols, and ideas respectively (29, 30).

Piaget's Description of Intellectual Processes

Piaget, Inhelder, and their associates believe that the growth of intelligence involves primarily the increasing ability to reason and to combine mentally several factors or rules necessary to solve a problem (i.e., divergent and convergent thinking in Guilford's terms). The final stage in the development of reasoning skills is reached in early adolescence when the child is capable of reasoning about events mentally without having to experience concretely the event he is thinking about (38, 73, 74). For example, the 5-year-old is not yet capable of deducing whether a thin piece of aluminum wire will sink or float if placed in water, since he is not capable of reasoning about the density of this substance. The adolescent is able to think mentally about the sinkability of aluminum wire by combining or integrating his knowledge of the weight per unit volume of the object with the volume of the medium into which the object will be placed.

During the middle-childhood years, according to Inhelder and Piaget, the child's mental apparatus acquires several important additions: the ability to return to the starting point of a mental sequence (called reversability); the acquisition of conversations; and the ability to perform

logical manipulations of one's thoughts (38).

REVERSIBILITY. Reversibility has two related meanings. In one sense it refers to the ability to initiate thinking about a problem and to interrupt the sequence at any point and return to the beginning without having altered the conception of the problem. It is the ability always to imagine the original problem situation. Thus, an individual can try out hypotheses mentally to see if they will be successful. If at the end of a train of reasoning he discovers that his answer is wrong, he can start over again.

Reversibility also refers to the knowledge that certain operations can be cancelled through a complementary operation. This is most obvious for arithmetic rules and physical phenomena. One can square the number 6 to get 36, or take the square root of 36 and get 6.

In physics, one can use prisms to split light into its component parts or to combine them into white light again. One can boil water to produce vapor or condense it to reform the same amount of water. These are reversible processes in which nothing is lost. The gradual acquisition of these important constancies, or reversible operations, are, according to Piaget, critical in intellectual growth.

CONSERVATION. The preceding discussion suggests that one of the important intellectual developments during the early years of school involves the emergence of the realization that certain attributes of the world (e.g., quantity of a liquid, weight of an object) remain stable regardless of changes in their color, location, orientation, etc. Piaget and Inhelder refer to this as the principle of *conservation*. The steps through which the child passes in learning conservation of quantity are best illustrated through using an experiment devised by these investigators. The 5-year-old child is shown two balls of clay of equal mass and is asked to judge whether they consist of the same or different amounts of clay. The child typically acknowledges that they are the same. The experimenter then flattens one of the balls so that it resembles a pancake, and asks the child which is the greater amount of clay or is there an equal amount of clay in both masses. Typically, the 4- to 5-year-old child regards the ball and pancake as unequal in quantity. He may say that the pancake has more clay because it is larger (in area); or that the ball has more because it is higher. One year later, however, he is likely to insist that the pancake and ball have the same amount of clay. When asked why, the 6-year-old child may reply that "The pancake is thinner but it is wider," indicating that he is aware of compensatory dimensions.

Inhelder and Piaget feel that one of the critical processes that must be

learned in order for the child to acquire conservation is an awareness and attention to compensatory elements (38). At a later stage, the child may state as his reason for regarding the pancake and ball as equal in quantity that "I can make the pancake into the ball again." The child recognizes that the process is reversible and uses this property to rationalize his belief that quantity is conserved. The realization that processes are reversible is one of the important advances in the child's effort to infuse constancy into the physical world about him.

The learning of other conservation principles is also proceeding during the early school years. The child gradually comes to understand that the shape of an object is conserved despite changes in its orientation; that the density of a specific substance is conserved despite changes in its shape or color. In short, the child is learning that there are certain constancies of "truths" about the world, and knowledge of these constancies—or conservations—aid the child in his reasoning and problem solving behavior.

LOGIC AND REASONING. The ability to use logic and reasoning is a second major characteristic of middle childhood and preadolescence. To illustrate, some basic logical elements involve the sequences: "If A is greater than B, and B is greater than C, then A is greater than C." "If A or B occur, then C will occur. A occurs, therefore, C occurs." A, B, and C can refer, of course, to anything from marbles to snowstorms.

The 7-year-old child may know that ten cents is more than five cents, five cents more than a penny, and ten cents more than a penny. However, he may not have learned the more general rule that if A is greater than B, and B is greater than C, then A is greater than C; and, therefore, he will be unable to generalize this fact about coin values to objects with which he is unfamiliar (e.g., bales of hay or stock quotations). The ability to apply logical rules to a variety of situations is regarded as the essence of intellectual growth and ability. Of course, the child is not consciously aware of these rules for he has not been tutored in these logical statements. But his problem solving behavior suggests that he is using logical rules.

Let us illustrate this process with one of the tasks used by Inhelder and Piaget—arriving at a rule about floating bodies. The child is given a variety of objects and is asked if they will float on water. After he has classified the objects as floaters or sinkers, he is asked to explain his reasoning. Finally, he experiments with the objects and containers of water, and must arrive at a rule or law after his experimentation is completed (38).

The 5-year-old is often inconsistent in his answers and will call a "pin" a floater on one occasion and a "sinker" on another. The 5-year-old has no rule for this problem, and his predictions are based on experiences with specific objects. Even then, the child can be persuaded to change his mind.

By ages 7 to 9, the child attempts to arrive at a rule, usually on the basis of weight, as to what will sink and what will float. A 7½-year-old boy will say, "The wooden ball stays on top—it's wood—it's light." (The key?) "It goes down, it's iron, it's heavy" (38, 29).

However, he still accepts contradictions, for if asked which is heavier, the key or the wooden ball, he will say the ball is heavier. Then if he is asked why the key sinks, he still insists, "because it is heavy."

By age 11 or 12, the child is close to understanding that the density of the object (i.e., its weight per unit volume) is a critical factor in determining whether an object will float or sink in water. A 12-year-old will classify most objects correctly but may hesitate with the aluminum wire. "(Why are you hesitating?) Because of the lightness, but no—that has no effect, it depends on the sort of matter, for example the wood can be heavy and it floats" (38, 37).

Thus, only during early adolescence is the individual capable of reasoning about the abstract attribute of density, which is not as clearly observable as weight, volume, and size. This ability to reason about abstract concepts such as density, which involves the relationship of several attributes, differentiates the young child's thinking from that of the pre-adolescent and adolescent's from that of the younger child.

During the middle-childhood years, the child passes from the stage of concrete operations (ages 7-11) to the stage of formal operations (ages 11-12 on). The stage of concrete operations is characterized by two major kinds of logical rules—class inclusion operations and serial ordering operations (38).

Class inclusion operations involve the ability to think about parts and the whole independently. For example, if the 5-year-old is given a box of wooden beads, 18 brown and 2 white, and asked, "Are there more brown beads or more wooden beads?" he is apt to reply, "More brown beads." He cannot deal simultaneously with the two separate concepts of "brown beads" (a part) and "wooden beads" (the whole), for when he thinks of the part, the whole is somehow destroyed and his response is determined by the part. An analogous answer might occur if you asked the child in a classroom of 30 children and 1 teacher if there were more children or more people. The 8- or 9-year-old, however, is able to keep the part and

the whole separate in his thinking and perception; he is able to comprehend that an object can be classified in two ways simultaneously (i.e., a brown bead as well as a wooden bead).

Serial ordering operations involve the ordering of objects in any series in which one object is greater than or less than another. The notions of "greater than" or "less than" can involve many dimensions: height, weight, length, width, redness, amount of money, etc. During the stage of concrete operations the child reasons, using serial ordering or class inclusion operations, with concrete and real objects. He has difficulty using these operations mentally without concrete (i.e., observable) objects in front of him. The stage of formal operations, reached during adolescence, is uniquely characterized by the ability to reason about thoughts, propositions, and possibilities and to combine them.

The main distinction between the thinking of the early school years and that of adolescence is that "the child is not aware of it [his own thoughts] since he never thinks about his own thought. . . . The child has no powers of reflection (i.e., no second order thoughts) which deal critically with his own thinking. No theory can be built without such reflection" (38, 339-340).

Let us summarize Piaget's description of the growth of intelligence. From birth to adolescence the child passes through five stages of thought. The sensorimotor stage from 0-2 involves minimal symbolic activity. The child is learning that certain actions have specific effects upon the environment. During the preconceptual and intuitive stages (2-7) the child learns the words and labels that are applied to objects or events. His thinking is still intuitive, however, and conclusions are based on what he feels, what he would like to believe, or on salient perceptual aspects of the stimulus.

Stage 4, that of concrete operations, lasts from 7-11 and is characterized by the application of logical rules to concrete objects. The final stage, that of formal operations, begins at early adolescence. Now the child is reasoning deductively, thinking about problems where all the ingredients of the problem are contained in his own thoughts. Moreover, he is able to evaluate the logic and the quality of his thinking. One of the major underlying processes during these years is that of reversibility—the ability to initiate thinking about a problem, stop in the middle of the sequence, and initiate a new train of thought—a sort of mental trial-and-error in which thoughts are tried out to see if they are suitable to the situation. A more detailed discussion of the stages of formal operations and a critical comment on Piaget appear in Chapter 13.

The Relationship to Schoolwork

What is the relationship between Guilford's and Piaget's ideas about thinking, the nature of intelligence, and the child's performance in school? First, it is important to recognize that the various academic subjects require different kinds of skills. All children are not equally proficient in memory, convergent thinking, or divergent thinking. Johnny may have an excellent memory but be unable to reason out arithmetic problems.

Piaget suggests that intellectual growth is not necessarily smooth and gradual. He feels there are qualitative differences in the child's thought in the different stages of intellectual development. The 4-year-old deals with the world intuitively and does not apply logical rules to all situations. The more logical thinking of the 13-year-old is usually adult in form. This change is not marked by a daily increment in the tendency to use adult logic. Rather, the child often seems to shift rather abruptly from one form of thought to another, with the same suddenness that typifies the child's first meaningful speech.

According to Piaget, training for comprehension of certain subject matter (physics, for example) should be delayed until the child's way of thinking is more formal and less concrete. Some psychologists accept the notion that the child gradually becomes capable of logical thinking, but believe that, through training, the child can be taught to use formal operations early in his school career (i.e., by 7 or 8 years of age). Exactly how early a child can be taught various intellectual skills is a question to be solved by future research, and one with which educators have become increasingly concerned in this era of space flights and automation.

The Learning of Concepts and Rules

In addition to a generalized description of intellectual development, Piaget has also studied the approximate ages at which children learn more about specialized aspects of their environment. He has been most concerned with (1) moral rules stipulating which actions are right or wrong (71), (2) rules of causality in nature (i.e., the child's concept of causal sequences in the physical and biological world) (70), and (3) the degree to which the child attributes life to inanimate objects (i.e., animism) (69).

Piaget believes that from ages 5 to 12 the child's concept of justice passes from a rigid and inflexible notion of right and wrong, learned from his parents, to a sense of equity in moral judgments that takes into account the specific situation in which a moral violation has occurred. For example, the 5-year-old is apt to view lying as bad, regardless of the

situation or the circumstances in which it occurs. With increasing age, the child becomes more flexible and realizes that there are exceptions to this strict rule (i.e., that there are some circumstances under which lying may be justifiable) (71). Piaget's techniques of investigation included conversing with children and asking them questions about moral issues or about the ethics of characters and events in short stories. For instance, in a conversation with a child he would ask "Why shouldn't you cheat in a game?" Or, after telling a story about a mother who gives the biggest piece of cake to her most obedient child, he would question the subject about the justice of her action.

Piaget's observations suggest that as the child becomes a member of larger, more varied peer groups, rules and moral judgments may become less absolute and authoritarian, more dependent on the needs and desires of the group. "Moral relativism," based on cooperation and respect for others eventually replaces "moral realism": "For very young children, a rule is a sacred reality because it is traditional; for the older ones it depends upon mutual agreement" (71, 96). For example, 150 children between the ages of 6 and 12 were told stories involving a conflict between obedience to parents and a sense of justice or equality, and were asked to solve the conflict. The percentage of children who chose solutions involving "obedience to adults" decreased steadily with advancing age. Thus 95 percent of the 6-year-olds, but only 5 percent of the 11-year-olds, and none of the 12-year-olds, favored this type of solution.

In another phase of this investigation, children were asked to give examples of what they regarded as unfair. "Behaviors forbidden by parents" were mentioned by 64 percent of the children between 6 and 8 years of age, but only by 7 percent of those in the 9- to 12-year-old group. On the other hand, inequality in punishment and treatment were mentioned by 73 percent of the 9- to 12-year-olds, but only 27 percent of those 6 to 8 years of age.

On the basis of numerous studies of this sort, Piaget concluded that:

... there are three great periods in the development of the sense of justice in the child. One period, lasting up to the age of 7-8 during which justice is subordinated to adult authority; a period contained approximately between 8-11, and which is that of progressive equalitarianism; and finally a period which sets in toward 11-12, and during which purely equalitarian justice is tempered by considerations of equity (71, 314).

Other investigators have tried to repeat some of Piaget's studies (25, 26, 53, 56, 85). For example, in one study, 101 boys and girls in Grades 2, 5, and 8 were questioned about the correct thing to do if one child hit

a second child (25). The older children were more apt than the younger ones to ask for the particular circumstances of the moral violation and the motive for the aggressive act. This finding supports Piaget's hypothesis that the older child views a moral violation in the total context in which it appears and his reaction is influenced by situational factors.

Using both American and Swiss children as subjects, Lerner (52, 53) confirmed Piaget's findings regarding age changes in moral judgments, especially among children of a lower socioeconomic status. He found a progressive decline in suggestions for solving conflicts by subordination to adult demands or acceptance of authority (including majority opinion) between the ages of 6 and 13. During the same period, solutions based on moral relativism, reciprocity, and equality increased.

Summarizing these changes in moral concepts, Murphy says:

Moral realism yields gradually during childhood to an ethics of reciprocity; what is right is now defined not in terms of self-evident and inherent necessity but in terms of a sense of balance or justice. Rightness is a matter of the mutual consideration of needs (63, 386).

One investigator attempted to test directly the relationship between the nature of the child's moral concepts and his interactions with parents and peers (56). Moral judgment tests and questionnaires about parents and peers were administered to 244 American boys between 5 and 14 years of age. From the boys' answers to the questionnaire items, the investigator derived measures of several aspects of authority and peer relations.

Analysis of the questionnaire data revealed that boys who were strictly controlled by their parents, currently or in the past, tended to conform rigidly to adult dictated regulations. Compared with the children of less strict parents, these boys were more likely to make moral judgments primarily on the basis of "such moral prescriptions as . . . respect for property, obedience to teachers, and veracity" (56, 17). They were less likely than the other boys to be influenced by the obligations of friendship and peer-group membership.

It is probable that the children of strict parents were more afraid of violating parental prohibitions than were the children of more permissive parents. As we saw earlier, the children who were least likely to be influenced by peer values feared withdrawal of parental acceptance for the commission of prohibited acts.

The child's development, therefore, includes at least two distinct processes (56). The first involves learning what society regards as right and wrong, which has been the focus of Piaget's work. A second factor is

the child's degree of guilt and anxiety over commission of a prohibited act. Thus, some children may know that lying is "wrong," yet have very little anxiety associated with this act.

When someone asks a child, "What should you do if a boy hits you?" the response is determined not only by his recognizing that hitting is wrong, but also by the anxiety he has over physical retaliation. The guilty child is apt to reply, "I wouldn't hit him" or "I would tell his mother," while a child with minimal guilt over aggression might say, "Why did he hit me?" or "I would hit him back." Piaget's hypotheses that equity with respect to aggression increases with age contain the implicit assumption that guilt over aggressive retaliation should decrease with age. However, there is evidence to suggest that this assumption is unwarranted.

CAUSALITY. The child's comprehension of physical causality also changes as he matures. With increasing age, the child gives less mystical and more naturalistic reasons for physical events. For example, to the question "Why is there lightning?", the 5-year-old might reply, "Because the sky is mad." The 11-year-old will usually supply a physical explanation (70).

However, the frequency of nonnatural answers is also related to the way the question is phrased, as well as to the child's familiarity with the phenomenon (65). When the phenomenon is not in the child's everyday experience, he is more apt to attribute nonnatural causes to it. For example, to the question, "Why do we have rainbows?", the 8-year-old may say, "Because it is a sign to tell you that the rain is over." This is a nonnaturalistic answer. However, the same child may give a naturalistic answer to a more familiar phenomenon. To the question, "Why does the radiator get hot?" he may reply, "Because hot water from the cellar is in the pipes of the radiator."

Moreover, in one study, children who were referred to a child guidance clinic because of symptoms of withdrawal from others gave more non-natural answers than normal children of the same age, sex, and intelligence (65). Apparently defensive withdrawal is associated with the way the child conceptualizes the environment. Since withdrawal from peers and adults minimizes the opportunity to learn about causal sequences in nature, it might be expected that withdrawn children would answer in less naturalistic ways.

ANIMISM. Piaget has found that animism (the ascription of life to inanimate objects) is also characteristic of the young child, but becomes less frequent with age (69). The young child does not accurately differentiate the living from the nonliving and may say that the sun or

clouds are alive. The 9- or 10-year-old uses the characteristic of "ability to initiate activity" as the basis of differentiating living from nonliving objects (49).

When other psychologists put Piaget's hypotheses to empirical test, they find that his statements about age norms in developmental sequences are a bit too dogmatic. There is much more diversity in children's thinking at different ages than one would suppose from reading Piaget. Some children are capable of complex thought sequences earlier than Piaget says they are, and many older children show immature modes of thought in some situations. Finally, Piaget shows minimal concern with individual differences in ways of thinking among children of the same age. However, his general descriptions of changes in children's thinking seem accurate and are an important contribution to the task of charting the unknown sea of children's thought.

Individual Differences in Modes of Thinking

Psychologists have always been interested in differences among children in personality traits (e.g., aggression, dependency, mastery, fearfulness) and general intelligence. Only recently, however, have they become interested in the different ways that children of the same age conceptualize or categorize stimuli. In Chapters 7 and 8, we described some of the general developmental changes in perception and thinking that characterize all children. For example, with age, children show an increased tendency to (1) analyze stimuli, (2) produce well articulated interpretations of ambiguous stimuli, and (3) use abstract language.

However, even among children of the same age and of normal intelligence, there are marked differences in preferred ways of dealing with stimuli. One of the important dimensions of preference involves the tendency to analyze stimuli in terms of their component parts—to attend to the internal parts of a stimulus in addition to the whole configuration. Some children characteristically "break up" and examine new stimulus experiences; others react to larger aspects of the stimulus.

In one series of investigations, children in Grades 1, 2, 3, and 4 were shown cards that contained three familiar objects (47). The child was asked to "pick out the two things that are alike or go together in some way." Some children put objects together on the basis of elements of objective similarity between two stimuli; others grouped objects together on the basis of an obvious relation between them. For example, one test card illustrated a dog without a mouth, a doghouse, and a boy without a mouth. The children who first analyzed the card noticed that the boy

and dog had no mouth and grouped these two pictures together. The children who reacted more impulsively, without studying or analyzing the stimulus, put the dog and doghouse together and replied, "The dog lives in the doghouse." Moreover, the children who were analytic on this test were also analytic in other test situations (e.g., finding the difference between two similar pictures), suggesting that some children have a general tendency to analyze new stimulus experiences, while others react to more general, global features.

In a separate set of investigations, Witkin and his colleagues have studied what may be a similar process, using different techniques (98). School-age children were shown a multicolored geometric figure in which a small design was hidden. The child's task was to locate the "hidden" design. Witkin believes that successful solution of this problem requires the ability to differentiate figure from ground and to resist the distracting and interfering stimulation coming from the larger figure. To some degree, this task requires the ability to analyze a figure into its parts. There are marked differences among children in degree of success on this task, and older children find it much easier than younger children. As a matter of fact, most children under 8 years of age find this task impossible to do. It is of interest that Witkin reports a tendency for boys and men to be slightly superior to girls and women on this type of problem. The preference for and ability to analyze complex stimuli can be of critical importance in many problem solving situations.

Learning to read is an excellent example of a task that requires an analytic orientation. To notice the difference between "cat" and "hat," and "dog" and "bag" requires the careful analysis of these letter arrangements. The child who impulsively reacts to his first hypothesis regarding the word may read it incorrectly. Repeated failure experiences of this kind will discourage the child, and may either make him very anxious about his reading ability or provoke him to withdraw motivation and concern from mastery of this task.

Many of the problems that the fifth-grader must solve also involve an analytic attitude. Intricately written verbal-arithmetic problems, for example, require the selection of the *relevant* aspects of the problem (e.g., multiplication or division signs) and a discarding of those that are irrelevant.

It is also possible that this skill (i.e., the tendency to be analytic) is intimately involved in some of Guilford's basic intellectual processes (e.g., recognition, divergent and convergent reasoning), but minimally involved in others (e.g., evaluation).

One of the important tasks for the future is to discover the exact nature of the complex relations among the various intellectual processes. Of equal importance is an understanding of the roles of heredity, congenital characteristics, and environmental experiences in the development of various intellectual skills. It is likely that the relative importance of these three causal agents varies with different skills.

VARIATIONS IN SCHOOL EXPERIENCE

The effect of the child's motivations and past experiences on his behavior in school were discussed earlier. Equally important, however, are the ways in which variations in the child's school experience may influence his attitudes and behavior. These variations may be of two sorts—general and individualized.

In the first of these two categories would be included experiences which are common to an entire group. In this class would be placed what are usually called situational factors, such as school atmosphere, educational philosophy, physical facilities, class size, and recreational opportunities. In the second category would be included experiences which are common only to certain children in a particular group, such as experiences of failure or achievement in relation to the group as a whole. Situational factors will be discussed first.

General Variations in School Environment, Teacher-Child Relationships

Among the situational factors affecting school adjustment probably none is so important as the teacher-pupil relationship. Most adults can recall at least one teacher who, in their opinion, helped them a great deal in the business of growing up—who showed them better ways to get along with their peers, who made learning new things an exciting adventure, or who gave them comfort and solace when they were troubled.

If we are not to be superficial in our consideration of the teacher-child relationship, we must realize that, since both teacher and child vary in their personal adjustments, hopes, interests, values, assets, and liabilities, the relationship between them is bound to be complex. No two teachers will react to a particular child in the same way. Conversely, no two children will react in identical fashion to the same teacher. There are, as we shall see, certain kinds of teachers to whom most children in our culture will react favorably, others to whom they will react unfavorably. There are also general patterns of pupil behavior toward which most of our teachers will have positive or negative attitudes.

But, as we shall also see, the problem of predicting how a particular teacher and child will react to each other is complicated by the problem of individual differences in both.

The child's behavior in school is not simply and completely a generalization from what he has learned in his home. It is always possible that the child will react in new ways in the school. New discriminations may be learned. A rejected child who encounters a warm, understanding teacher may begin by reacting to her as he has learned to react to his cold, neglectful parents. But gradually he may learn that the teacher does not behave the same way his parents do—that, for example, expressions of trust will not be rebuffed by her. As a result, he may slowly learn new patterns of response.

Children's Preferences in Teacher Behavior

In a study of children's preferences in teacher behavior, Jersild (39) found that children in our culture tend to prefer teachers who possess the following characteristics: (1) *human qualities*—kind, cheerful, natural, even-tempered; (2) *disciplinary qualities*—fair, consistent, impartial, respected; (3) *physical appearance*—well groomed, nice voice, and generally attractive; (4) *teaching qualities*—helpful, democratic (give children voice in class affairs), interesting, and enthusiastic.

The same sorts of characteristics seem to be preferred by older as well as younger children (33, 51).

Teacher Behavior and Group Atmosphere

The view that dominating or hostile teachers will affect pupil adjustment adversely, while the nonpunitive, interested teacher will facilitate good adjustment, derives support from a number of studies of teacher behavior and group atmosphere. In a series of related studies (3, 4, 5, 6, 7, 8), Anderson and Anderson and their coworkers undertook to study "The nature and degree of relationship between . . . children's behavior . . . and . . . teacher's dominative and socially integrated contacts." These investigators were interested in testing two hypotheses which they felt could be applied to teacher-child relations. The first of these, referred to as "The Hypothesis of the Growth Circle," was that "Integrative [i.e., give-and-take, democratic] behavior in one person tends to increase integrative behavior in others" (5). The second hypothesis, referred to as "Hypothesis of the Vicious Circle," was that "Dominative [i.e., authoritarian] behavior in one person tends to incite domination in others" (5).

In their observations of teacher-pupil interactions, these investigators considered dominative behavior on the part of teachers to be evidenced by such behaviors as use of force, commands, threats, shame, blame, and rigid insistence upon conformity. Integrative behaviors, on the other hand, included approval, extending invitations to activity, questioning the child about his interests, sympathy, and mutual participation of children and teachers in activities (5).

In one of these studies, the reactions of the pupils of two second-grade teachers from the same elementary school were observed (6). One of the teachers was found to be consistently more integrative or democratic, and less dominative; the other was consistently more dominative or authoritarian. The children in each of the teacher's groups had been assigned randomly in the first grade, and had been promoted as a room. Thus there was no reason to assume that the two classroom groups differed significantly in any important respects.

It was found that the children with the more integrative teacher tended to behave more integratively than did the children of the more dominative teacher. They displayed a significantly greater number of behaviors reflecting spontaneity, initiative, and constructive social attitudes relating to others. The findings "were consistent with the hypothesis that *integration in the teacher induces integrative behavior of the child*" (7).

On the other hand, the children with the more dominating teacher showed significantly higher frequencies of nonconforming behavior. This supported directly the hypothesis that domination incites resistance. In addition, the children with the more dominating teacher paid less attention to their work, engaging more in such activities as looking around and whispering to their companions (7). "If it is a pedagogical objective for a teacher to reduce the conflict and increase the harmony in her school room, then the study showed that [the dominating teacher] was defeating her own purpose" (7).

These same teachers and children were studied a year later (8). The children by this time were, of course, in the third grade. It was found that the teachers tended to behave in a similar manner year after year, regardless of the kinds of pupils they encountered. The children, on the other hand, did not. They showed far greater flexibility, reacting dominatively if they had a dominative teacher, but shifting readily to integrative behavior if their next teacher happened to be an integrative individual.

These studies suggest that the behavior of school children is highly dependent on the behavior of their teachers, and that teachers who use democratic (integrative) techniques with their children will be rewarded

by greater cooperation, spontaneity, interest, and initiative on the part of their pupils. On the other hand, teachers who attempt to force compliance through aggressive dictatorial techniques will only be encouraging greater resistance on their pupils' part—whether manifested by whispering, doodling, lack of attention, or through more direct opposition. In general, the integrative teacher more often helps to satisfy the child's needs and less often frustrates him.

The dominative teacher, on the other hand, through her lack of concern for the child's needs and her narrower conception of socially acceptable behavior, more frequently frustrates the child in his attempts to satisfy his needs. Since, as we have already seen, frustration may produce aggression, the dominative teacher is likely to become a target for hostility, rather than a source of reward. Thus she is likely to encounter more difficulty in her attempts to instill socialized responses than the integrative teacher. She may be able to inhibit overtly aggressive responses on the part of her pupils through the use of fear and punishment, but she is not able to instill a positive desire for cooperation.

GROUP ATMOSPHERE. Somewhat similar conclusions were reached by Lewin, Lippitt, and White (54) in a study of "group atmosphere." While this study deals with the relations of boys' club members to adult leaders, rather than with those of pupils to a teacher, the situations are actually quite similar. Hence the study seems applicable to the school situation.

In this study, four recreational mask-making clubs, each consisting of five 11-year-old boys, were subjected to three different types of adult leadership and group atmosphere: *democratic*, *authoritarian*, and *laissez-faire*. In the authoritarian atmosphere, the adult leader determined all the club activities, policies, and procedures; assigned tasks and working partners; gave praise and reproof arbitrarily; and remained generally aloof from the group. Under democratic leadership, policy, group goals, individual responsibilities, and choice of working partners were all matters of group discussion and decision. The adult leader acted as a group member in spirit; assisted, encouraged, and gave advice about technical problems, and praised or criticized individual and group activities objectively. Laissez-faire leadership was essentially passive, and the group was completely free to make its own decisions about activities and procedures. The leader provided information and help only when asked and made no attempt to evaluate the behavior or the products of the individuals or the group.

The different groups were matched on intelligence, physical energy, and social behaviors, such as obedience, social participation, leadership,

friendships, and quarreling. Since the investigators were interested in the consequents of shifts from one type of leadership to another within the same group, each group experienced seven weeks of each kind of leadership. For instance, in some groups democratic leadership followed laissez-faire, and in others the opposite order occurred.

Data collected included quantitative running accounts of the directive, compliant, and objective approaches and responses of leaders and children; minute-by-minute group structural analysis including activity subgroupings, goals, and initiator (child or leader); notations of significant member actions and changes in group atmospheres, and stenographic records of all conversations.

All the data indicated that the group atmosphere created by the leader affected many aspects of the children's behavior in interrelationships. Authoritarian leadership elicited either of two distinct kinds of reaction: passivity and apathy (extreme dependence on adult leader, relatively low levels of frustration, complete failure to initiate group actions) among the members of three clubs; and aggressive responses directed toward the authoritarian leader in the fourth club. Under this type of leadership, all groups were much more dependent upon the leader and demanding of his attention than in either the democratic or laissez-faire situations.

Rebellious feelings were expressed most frequently in the group which reacted to autocratic treatment with aggression. But in general, authoritarian leaders were approached submissively by their children. In the laissez-faire atmosphere, club members had no cooperative working relationships with their leaders and most frequently spoke to them only to ask for information. Personal, friendly, and confiding approaches to adult leaders were typical reactions in the democratic atmosphere, where there were few indications of feelings of discontent.

Interpersonal relations among the club members also varied with the social climate. Group-minded suggestions—connoting freedom, spontaneity, and interest in others—were most characteristic of the democratic social climate, and morale and cooperation were highest in this atmosphere. Friendly remarks and group-oriented statements (concerning “us” instead of “me”) were most common under democratic, and least common under autocratic atmospheres. Moreover, free and easy sociability between the boys was apparently inhibited in the autocratic group, which had the smallest volume of conversation between children and little discussion about outside activities.

Irritability and aggression toward other club members were expressed more frequently in both authoritarian and laissez-faire climates than

under democratic leadership. In a prior study, the group which reacted with great hostility to the authoritarian climate channeled its feelings on the leader and the members of other groups. In another related study (55), the aggression produced in the autocratic atmosphere was turned against two group members (scapegoats) whom the others treated so badly that they ceased coming to the club. When groups under autocratic domination were transferred to freer democratic or laissez-faire social atmospheres, there was a great deal of horseplay among the members, indicating a need to discharge pent-up aggressive tensions which had accumulated during their earlier experience.

Group goals and work achievements were affected by the social climate also. The masks made in the democratic atmosphere were of higher quality than those produced in the other two social climates.

When authoritarian leaders arrived late (intentionally) they found there was no group initiative to start new work or to continue with work already under way. On the other hand, in democratic climates, the groups became active in a productive way even if their leaders were not on time. When the authoritarian leader left the room, working time dropped to a minimum, while in the democratic atmosphere, absence of the leader did not affect the group productivity or intention to work.

At some point during the study each group was given hostile criticism by a stranger (a "janitor" sent by the experimenter) who entered while the leader was gone. In the authoritarian atmosphere, this criticism was passively accepted or led to aggression against an out-group. However, the democratic group showed a readiness to unite in rejecting the stranger's unjust comments.

It can hardly be denied that these experimental results are impressive and that behavior varies as the general social atmosphere changes. However, the finding that democratic treatment of the children resulted in greater cooperation, enjoyment, and productivity cannot automatically be generalized to apply to all children. It seems quite reasonable to believe that most of the subjects in this study came from democratic homes. Hence the cues presented in the democratic atmosphere were somewhat familiar to them. They had learned techniques for functioning effectively and cooperatively in such situations. They would consider the authoritarian atmosphere, and the experimenter's activities in particular, to be restricting and frustrating. Consequently they would be unhappy and behave in a disorganized, aggressive, ineffectual manner in such an atmosphere. Children from authoritarian homes who had been rewarded for submissive behavior might find the authoritarian situation easier to

handle than the democratic. In brief, we cannot understand the child's behavior in any specific situation, such as the classroom, without considering his past history and learning, as well as the stimuli immediately present.

Teachers' Preferences in Pupil Behavior

We have previously discussed the fact that children prefer teachers who meet their social and emotional needs most adequately. Conversely, most teachers, since they are human beings (a fact often ignored by parents, pupils, and school boards) are likely to prefer students who either make their jobs easier or who give them a sense of accomplishment. The child who disturbs the smooth functioning of the class, or the child who gives the teacher a sense of failure, apparently either by refusing to learn, or by demonstrating inability to learn, is often likely to receive little consideration from the teacher.

In an excellent pioneer study of children's behavior and teachers' attitudes, Wickman (96) obtained the opinions of teachers as to the relative seriousness of 50 behavior problems of school children. The opinions of these teachers may be considered fairly typical for the era (the middle 1920s) in which they were obtained, since they represented the considered views of 511 teachers, distributed throughout the United States. In addition to obtaining teacher opinions, Wickman also asked 30 clinicians, all actually engaged in the study and treatment of behavior disorders in children, to rank the same 50 behavior problems.

The combined ratings obtained for each group were then compared. In general, the teachers viewed behaviors involving immorality, dishonesty, transgressions against authority, and classroom disturbances as the most serious problems. These included: heterosexual activity, stealing, masturbation, obscene talk, truancy, impertinence, cheating, and destroying school materials. Among the least serious problems, according to the teachers, were withdrawing personality characteristics, such as shyness, dreaminess, unsocialness, and sensitiveness.

The clinicians, on the other hand, viewed the latter characteristics, together with unhappiness, depression, resentfulness, and fearfulness, as among the most serious. In contrast to the teachers, the clinicians were least disturbed by violations of school procedures, such as tardiness, disorderliness in class, interrupting, destroying school materials, and disobedience; and by such socially disapproved behaviors as smoking, profanity, and masturbation.

It seems quite reasonable that there should have been these fairly

consistent differences in the over-all attitudes of the teachers and clinicians. After all, as already noted, the essential job of the teacher, at least as viewed at the time of this study, was to communicate the social values and basic skills of the culture to children. She could do this only in a reasonably orderly environment, and only with students who were able and motivated to learn. The child who was aggressive and attacking in his behavior naturally represented more of a threat to order than a withdrawing child. Though both may have had difficulty in school, the latter at least did not interfere with the learning opportunities of the other children. Therefore the teachers considered more serious those kinds of behavior which made teaching more difficult, challenged the social values that she had the responsibility for communicating, or threatened to undermine her authority.

The job of the clinician, on the other hand, was to promote individual adjustment. His function was only secondarily one of education. He would, therefore, consider most serious those problems which were most difficult to treat, or which posed the more serious threat to the individual's future mental health.

It should be pointed out in this connection that more recent studies have shown greater agreement between teachers' and mental hygienists' ratings of problem behavior. This probably reflects the greater emphasis currently being placed by teacher-training programs on the teacher's responsibility for the over-all growth of the child, rather than merely on his academic progress. Unfortunately, there are still some teachers who, either through lack of training or through personal inadequacy, see their function in the child's life as limited to teaching the three R's. They fail to recognize that the child has important emotional and social, as well as intellectual, needs, and that all are necessarily involved in adjusting to the complexities of life's demands—many of which are related only peripherally to academic proficiency. The present trend, however, is encouraging, and there can be little doubt that future generations of children will stand a better chance of becoming well-adjusted adults if it continues.

Individual Differences in Teacher Personality

Despite the fact that teachers as a group differed markedly from clinicians in Wickman's study, individual differences in teacher personality were clearly reflected in their ratings. Perhaps this is shown most clearly in a pilot study which preceded the work described here.

When teachers were asked to submit lists of school behavior problems

that concerned them, some stressed primarily problems of obedience and honesty. Others concentrated almost exclusively on problems which offended their standards of morality. Still others were concerned with social difficulties with peers.

Obviously, individual differences in the attitudes of teachers may affect the social and emotional learning of their pupils. For example, the teacher who is concerned primarily with social adjustment will almost certainly reward and punish different behaviors than the teacher who is primarily concerned with moral transgressions. Of course, teachers' attitudes are, in turn, the consequents of many factors in their own lives: their experiences with pupils; their own childhood experiences with parents, teachers, and peers; and current frustrations or satisfactions in their everyday lives.

Influences of Children's Textbooks

While the teacher's own attitudes and behavior undoubtedly exert a more profound effect on the school child's development than do the texts she uses, the latter also play an important role. It is, of course, obvious that textbooks contribute to the child's development of academic skills. It is probably less apparent that they may also influence his development of social and emotional attitudes.

In order to investigate the possible influence of children's readings on the socialization of the child, Child, Potter, and Levine (18) made "an analysis of certain content of the world of ideas which confront children in the process of education, from the point of view of the probable effect of that content on the motivation of their behavior." Specifically, all the stories in 30 general third-grade readers were analyzed with respect to type of story, fictional characters, behavior displayed, circumstances surrounding behavior, and the consequences of behavior. These authors assumed that . . . when a sequence of behavior is seen as leading to rewards, the effects will be to increase the likelihood of the child behaving in that way under similar conditions in the future. . . . When, on the other hand, the sequence of behavior is shown as leading up to punishment, it is expected that the incident will contribute to the probability of the subject's avoidance of such behavior in the future.

These researchers found that "the treatment of various categories of behavior in children's readers can leave no doubt that this treatment tends to encourage the development of certain motives and to discourage others" (18).

The most frequently rewarded behaviors in the stories were: construc-

tion (creation of a material or intellectual production); sentience (enjoyment of and seeking after sensory pleasure); elation (joy, enthusiasm, and optimism); succorance (attempting to obtain protection, sympathy, or assistance from another person); affiliation (manifestation of friendliness and good will and the desire to do things in the company of others); nurturance (helpfulness and willingness to exert oneself to aid any creature that might be in need of assistance); achievement (ambition to succeed or a desire for a specific physical, intellectual, or social success).

On the other hand, displays of temper, flagrant disobedience, verbal and physical aggression, rejection (feelings of indifference, annoyance, or scorn toward other people; acts of avoidance and neglect) and infavoidance (self-consciousness, shyness, and social embarrassment) were most frequently punished in the stories. Despite an emphasis on learning there was little encouragement of intellectual activity as such or of original thinking.

The system of rewards and punishments in the stories obviously reflects and reinforces the general cultural norms of our society. They are "symptomatic of probable characteristics of other kinds of content in the world of ideas that reach children—what teachers say to them in classrooms, morals that their parents point up to them, the content of stories they read elsewhere" (18).

Generally speaking, the material of the readers "provides lessons to children encouraging or discouraging the development of motives in a way that is likely on the whole to lead to more satisfactory adjustment in our society" (18). However, the authors feel that the unrealistic optimism of many of the stories, and their failure to encourage independent, autonomous action on the part of the children may be regarded as defects.

The feelings, personal characteristics, and activities of the male and female characters in the stories were markedly different. Compared with males, females are more frequently portrayed as sociable, outgoing, kind, timid, easily frightened; but inactive, unambitious, and uncreative. "To the extent that boys identify with male characters and girls with female characters, this difference both in itself and as a reflection of facts that hold true of many sources of influences on children, must have a profound significance for the differential development of personality in the two sexes" (18).

The schools and educational methods align themselves with other familial and social forces in making clear distinctions between males and females with respect to appropriate behavior and personality. As the authors conclude, "there is clear evidence that the education [of the two

sexes] is not the same, even at early levels of grammar school and even when boys and girls are mixed together, as they usually are, in the same classroom. Not only does the informal training of boys and girls at the home and in the community differ, but even the formal education they are receiving in the classroom differs" (18).

Competition and Cooperation

Any discussion of the effects of school experience upon children's behavior and adjustment must deal with the general problem of competition-cooperation. American school children appear to be rewarded for attempts to outdo others to a much greater extent than their peers in many primitive cultures. "... American education is at least partly a system of social relationships in which students are pitted to outdo each other. We sometimes talk of this as encouraging talent to come to the fore. Such education helps an American to feel most adequate in those tasks he can perform better than—or at least as well as—other individuals in his group" (63, 190).

As we saw earlier, research findings support the notion that young children are only mildly concerned with competition, but that they become progressively more competitive as they grow older. These results probably reflect the growing child's awareness and consequent adoption of the competitive values which are so pervasive and so consistently rewarded in our culture.

Competition and cooperation are, of course, not mutually exclusive. In many activities, both cooperative and competitive responses may be reinforced simultaneously. For example, in team sports such as football, winning over the opposition team requires a high degree of cooperation among team members.

The problem of whether American children generally strive harder under conditions of individual competition or as members of competing groups was investigated in a series of experiments by Maller (57). He used an additions test to determine how hard children would strive for success under a variety of competitive and cooperative conditions. His subjects were 1,538 students in the fifth through eighth grades of various eastern public schools. In general, it was found that children did consistently better on this test (more additions per 12 minutes) when working themselves for individual prizes than when working for a group prize based on an over-all group score. Also, when children were offered the choice of working for themselves or for the group, the group was chosen in only 26 percent of cases and the self in 74 percent.

But while these children usually preferred individual competition to working with most kinds of competitive groups, this was not exclusively the rule. The following list shows the kinds of competitive and cooperative situations employed by Maller (57), and the children's relative preference for them (according to rank).

1. Sex groups.
2. Self.
3. Team: The children elected two captains; they in turn chose two teams which competed with one another in speed.
4. Partnership: Each pupil in the class was told to choose a partner; a contest between partnerships was then staged.
5. Classroom.
6. Arbitrary group: The examiner divided a class into two halves; the groups were then to compete with one another.

In general, this study suggests that American children generally prefer individual competitive situations, probably because this type of competition is more frequently rewarded in our culture than team competition requiring individual cooperation among team members. It is interesting to note that in this study participation as a member of a sex group was seen as more rewarding than individual competition. Unquestionably the tremendous amount of reward associated with playing one's sex role in our culture, plus the increases in anxiety that accompany deviations from it, were in large measure responsible for this preference in Maller's experiment.

A number of authors (37, 41,) have challenged the wisdom of the American emphasis on individual competition as an end in itself. They have argued that competition is often an uneconomical, even at times an impossible, way of attaining mutually beneficial goals. While at times people may work harder for individual as opposed to group rewards, this is often done at the expense of rewarding interpersonal relationships. For example, in one study (83), second-grade children were asked to paint murals under two conditions—for individual and for group prizes. It was found that under the condition of individual competition, the children engaged in less positive and more negative behavior. Under the group conditions, the children "made more friendly remarks, shared materials, and helped one another more often than under competitive conditions" (83). Apparently undue emphasis on individual competition may have its negative aspects.

Of course, the problem is not simply one of the relative appropriateness of two kinds of competition—individual versus group (which also involves

cooperation). In our society, children develop competitive needs early in life because competing is often rewarded. At the same time, however, they are often rewarded for cooperating with parents, siblings, or peers. Thus they develop needs for cooperating which are not necessarily associated with competitive goals. The problem of reconciling competitive and cooperative needs is often a difficult one. As Horney points out, "On the one hand everything is done to spur us toward success, which means that we must be not only assertive but aggressive, able to push others out of the way. On the other hand we are deeply imbued with Christian ideals which declare that it is selfish to want anything for ourselves, that we should be humble, turn the other cheek, be yielding" (37).

In other words, the culture not only reinforces one set of attitudes and behaviors, but also the opposite—often without providing clear cues as to the particular circumstances under which each may be appropriate. As a result, the child is unable to make proper discriminations, and may be in conflict as to whether to compete or cooperate.

Implications for Teacher Behavior

It might be hoped that the establishment of such discriminations could be aided by the teacher. But she can only do this if she, and the school of which she is a part, have themselves achieved a workable solution to the problem. Too often, however, the school not only fails to help the child solve preexisting problems in this area but actually creates new problems or magnifies old ones.

In the light of the above considerations, Jersild's (41) warning as to the dangers of undue emphasis by the school on competition at all cost seems highly relevant. He points out that competitive pressures may be extremely unhealthy if they "force the judgment of failure and defeat even on those who do not of their own accord have a compulsion to compete" (41). As he says:

The child who is interested and enterprising but who originally does not have a keen, competitive impulse might become doubtful of his worth when he notices that the school he attends is so ridden with competition that everything seems to require a rating, a mark, or a grade based on an external measure of achievement or success. When a child in such a situation notices the teachers seem to be slaves of the competitive system it will be difficult for him to see how a teacher could like him and respect him when the teacher knows he stands below the middle rank in his spelling, arithmetic, music, or some other occupation. The child has to be very sturdy if he is to keep his confidence in himself when called upon to face constant reminders of inferiority. Reminders of inferiority are inevitable in the school which stresses competitive standards,

for it is of the essence of a competitive standard that only the one who wins top place or almost top place really has achieved something that counts. So a very able child, matched with many other able children, can get the impression of being a rather inferior character because competitive situations are usually so rigged that only a few can win. . . .

Competitive standards give little recognition, if any, to the child who is not the first to cross the finish line but who entered the race even though he knew he was handicapped. Yet if gameness were the criterion, he should get the prize. Competitive standards give a medal to the winner of the oratorical contest but they may quite ignore the one who, in joining the contest, scored a magnificent triumph over his shyness, even though he did not surpass someone else's skill! (41, 227).

Of course, competition cannot be avoided in the school, nor should it be, since the child must be prepared to exert himself in the struggle for existence when he steps out into the adult world. But competition solely for the sake of excelling others can be minimized. Competition with one-self in the sense of overcoming one's own handicaps can be stressed, with the credit given being proportional to the difficulties encountered in the struggle. So also can the real fact that often one can satisfy his own needs, not through competition with others, but only through mutual cooperation. In our complex society the individual who cannot cooperate will be just as frustrated in the satisfaction of his basic needs as the one who cannot compete.

Individual Variations in School Experience: School Success and Failure

As we have just noted, one of the unfortunate results of undue emphasis on competition may be to give many children feelings of failure. Of course, academic competition is not the only source of such feelings. Many other factors in the school situation may also contribute. The child may be made to feel inadequate either by teachers or peers because of his socioeconomic or caste status, his physical appearance or defects, his special interests, or his particular personality pattern. Regardless of the source of these feelings, however, they may have profound effects upon the child's school adjustment.

This is well illustrated in a study by Pauline Sears (77). She hypothesized that experiences of success or failure in a task would affect the child's self-confidence and would influence his future levels of aspiration (achievement goals) with respect to the tasks. She set out to test this hypothesis by selecting three groups of six children each, differing with regard to past experience in reading and arithmetic. A "success" group was made up of children who had shown objective evidence of success

in reading and arithmetic, school grades and achievement scores, as well as subjective feelings of success during their entire school experience. A "failure" group was composed of children with the opposite experience. A third, or "differential" group was made up of children who had had successful experience with reading and unsuccessful experience with arithmetic. The three groups were matched on other factors which might conceivably have affected their performance in the experimental situation, such as chronological age, mental age, and sex. Each of these groups was then exposed to three experimental conditions—neutral, success, and failure.

NEUTRAL CONDITION. In the first of these, all children were given short speed tests in reading and arithmetic. After completion of a test, the child was told that he had completed it in so many seconds, and was asked how many seconds he was going to try to do the test in on a second trial. No comments about relative success or failure were made at this time: "After the first or neutral session, half of each group was given the reading material under success and the arithmetic under failure conditions; while the remaining half were given arithmetic under success and reading under failure conditions. All subjects performed on *both materials* in the first session under neutral conditions, and on subsequent days on one material under success, and on the other under failure conditions. The neutral, success, and failure sessions were each separated by two or three days" (77).

SUCCESS CONDITION. In the success session the subject was told that on the reading (or arithmetic test) which he had taken the other day, he had done well, and that the experimenter wanted him to take the test again to see if he was really that good. Twenty more trials were then given, and after each trial the child stated his new level of aspiration (i.e., in how many seconds he was going to try to do the next trial). On the whole, the experimenter attempted to report times (scores) that showed progress and were more or less in accord with the child's most recently stated level of aspiration (regardless of the child's actual performance).

FAILURE CONDITION. In this session, the procedure was roughly opposite to that of the success condition. The subject was told how poorly he had done the other day, and during his twenty trials was reported to be getting progressively worse.

The measure adopted by Sears to study the relationship between level of aspiration and performance was a *discrepancy score*. A single discrepancy score was the difference (in time) between the performance score reported to a subject for a given trial (whether true or not) and

the score the subject aspired to on the succeeding trial: "*a positive discrepancy score indicates a goal for achievement better than that of the preceding performance*" (77).

Sears made several interesting discoveries in analyzing her data. When all experimental conditions were lumped together and only groups with different school records were compared, the success group (those with histories of academic success) tended consistently to have low but positive discrepancy scores in the test situation. In other words, children who had previously been rewarded by success for improvement in certain areas (i.e., reading or arithmetic), kept on trying to improve in the experimental situation, though in a realistic fashion. The failure group, while also predominantly positive in their discrepancy scores, were much more variable, ranging from slightly negative to extremely (and unrealistically) positive. In short, children who had previously encountered only failure tended, in the experimental situation, to lower their goals, or to be altogether fanciful about their hope for improvement. The differential group (those with histories of success in reading and failure in arithmetic) responded like the success group on reading (in which they had always been good) and like the failure group on arithmetic (in which they had always been poor). Thus their level of aspiration showed the important influence of prior experience with success and failure in specific tasks.

In another phase of the study, the three groups of subjects with differing histories were *lumped* together, and only the various experimental conditions were compared. When this was done, it was found that induced failure tended to increase the discrepancy score and to make it more variable, while induced success tended to lower the discrepancy score and also to make it less variable.

In general, it was found in this study that subjects who had been successful in their past school work on such tasks tended to try to do better in the future but to be realistic about their goals, altering them in accord with the experimenter's statements as to their current level of performance. Failure subjects, on the other hand, appeared to react in a variety of ways. A few behaved much like the success subjects; but the majority either set unrealistically high goals in relation to their reported performance, or "played safe" by setting lower goals.

Sears' study suggests that experiences of success encourage children to adopt a relatively healthy approach to school work. Children with such experiences are self-confident and make attempts to improve because improvement responses have been rewarded, but their aims are realistic. On the other hand, children who are consistently confronted with failure

tend to react either by setting unrealistically high goals which they cannot possibly accomplish, or by setting goals below their real level of ability, in an attempt to protect themselves from the anxiety of further failure.

Clearly, a child's self-confidence with respect to intellectual work influences the quality of his academic work. A study of fifth and sixth-graders (78) revealed that boys' evaluations of their mental abilities are apt to be more accurate than girls' evaluation of their abilities. That is, boys' self-ratings of their mental abilities agree better with teachers' ratings of their abilities and objective test scores than do girls' self-ratings. Girls tend to underestimate their ability more than boys, in part because of low self-confidence (78). In addition, many girls feel it is inappropriate to be "too smart," and hence they play down their mental ability. These results agree with the previously reported findings that girls are less likely than boys to show large increases in IQ during the school years and more likely than boys to have high test-anxiety scores. It would appear that girls have less self-confidence than boys about their intellectual ability, and that this anxiety causes them to withdraw more readily from difficult tasks.

Lower-class children who are initially handicapped in the school situation are also apt to develop a fairly strong fear of failure because they do not have the language skills of middle-class children. The lowered self-confidence resulting from this fear of failure leads to apathy and withdrawal of concern with school work, and soon the child may be classified as a learning problem.

In the light of such findings as these, it would appear important that the school should try to avoid giving any child repeated and consistent feelings of failure. Not only are such feelings likely to lead to extinction of responses aimed at improving in the particular task in which failure is experienced; they are also likely to generalize to other school tasks as well and to lead to the development of negative attitudes toward the school as a whole. Furthermore, such experiences are likely to influence negatively the child's over-all appraisal of himself. In one study, children from the fourth grade through college were asked to write themes on *What I Dislike about Myself* (40). It was found that "at practically all levels (except at college) experiences pertaining to life at school were mentioned more often as a source of self-disparagement than as a source of confidence and good feeling toward the self" (41). Thus it appears that "in a great many instances the school does more to undermine than to encourage and support the average child's acceptance of himself" (41). Perhaps as Jersild suggests,

. . . the school constantly and perpetually, day in and day out, year after year, reminds great numbers of children that they are not much good. To a large number of children who do not happen to have the kind of intellectual and conformist tendencies which are praised in most institutions of learning the school dispenses unfavorable comparison, reminders of failure, and implied rejection on a colossal scale. . . . What often happens is that when a person fails in a given test in life, such as an important assignment at school, it is difficult for him not to view this as a test of him as a person, a total test rather than just a measure of a limited facet of his worth. When a child is deficient in arithmetic or in reading he will have a tendency, at least for the moment, to feel that he is just plain deficient in everything . . . (41, 609).

While children need to be given realistic reminders of their deficiencies, this can be done without giving them the impression that they are failures in all respects. The teacher who can accept in herself the realization that there are some things in which she herself is not particularly talented without a loss of self-esteem, is in the best position to help the student face his own assets and liabilities without becoming discouraged (41).

Case Material. Peter B

RELATIONS WITH PEERS. During the early school years, Peter's adjustment to age-mates was clearly related to the passivity, dependency, and fear that characterized his personality during the preschool years. His lack of interest in boyish activities and his avoidance of stressful situations gradually led to social isolation from his peers. He seemed to find enjoyment in gardening, collecting rocks and flowers, and playing the piano. On several occasions he indicated that he might like to be a florist or a baker, occupations which do not require competitiveness, or extensive social interaction with others.

When the boys and girls divided into play groups, Peter was usually found with the girls. Furthermore, he seemed oblivious to the teasing that resulted from this "siding with the girls." He enjoyed racing with them and willingly took part in the game of "house" which they initiated. He would willingly play father, milkman, horse, or any other role they suggested for him—finding special pleasure in the domestic details associated with the games that girls typically choose. Peter enjoyed flowers, and when the group went on a hike he pointed out every new variety, often gathering a straggly bouquet to which he clung during the excursion.

Peter was a follower, and was usually on the periphery of the group. His fear of fighting and competitive athletics prevented him from entering most of the play of boys his age and, finding himself alone so often, he

became increasingly involved in his music, his garden, and his pretty rocks. Failure to obtain peer recognition and acceptance made it even more important that he retain the acceptance of his parents and teachers.

ADJUSTMENT TO SCHOOL. Peter transferred his dependent and obedient relationship with his mother to his teacher and became a conforming and studious young boy. He chattered constantly about his teacher during supper and before bedtime, and waited after school so that he might walk home with her. Peter parroted his teacher's views on many issues, interposing phrases like, Miss A said this; or Miss A said that; or "Miss A's victrola is just like mine except that hers is brown and white."

Peter needed the teacher's praise and acceptance, and the possibility of failure in school was a major source of anxiety for him. He frequently told his mother, "I am afraid that I won't do everything right at school." Failure on a test represented potential rejection by the teacher, and Peter's concern over "doing well" in school resulted from his strong need to retain the teacher's approval.

SUPEREGO DEVELOPMENT AND SOURCES OF CONFLICT. During this period, Peter's conscience was excessively strict. Any act that was not specifically permitted by adults was viewed as "taboo." He often behaved like a policeman—informing a staff member of the day camp that "somebody was climbing the poles of the swing," or "... taking off their shoes," or "... carrying a toy outside." Peter interpreted all adult prohibitions literally, and he became the model of a "good" boy. He repressed any temptations to lie or to act aggressively. Perhaps he had guilt feelings about such dangerous thoughts, for he manifested many irrational fears of danger and unusually strong fears of being hurt. He would come into his mother's room at night, lean over her, and talk to her. As his mother phrased it, "Peter would be very close to me as if he wanted to tell me something." Occasionally, Peter became frightened and upset before bedtime and he sought reassurance from his parents. He would ask rhetorically, "Nothing is going to hurt me tonight; I shall be all right, won't I?"

Peter also developed a number of psychosomatic symptoms. He had difficulty in keeping food down and often complained of cramps. He was hypochondriacal and became unduly concerned when he became ill. One particularly warm day, he insisted on wearing a sweater to Bible School because he was afraid he might catch cold, despite the fact that his mother assured him that he would not need it.

Peter had recurrent nightmares, and for a period of six months he had a strong fear of turtles. His excessive concern with injury to living things was dramatically illustrated one day while he was inspecting his plants

in the family garden. He screamed whenever he found a worm that was eating a leaf or a leaf that was dying.

As might be anticipated, Peter never retaliated when attacked; he was afraid of fighting because it was bad and because he might be hurt.

During an interview at Fels, Peter said, "Some of the boys fight, but I never fight, I just pray that no one ever hits me."

When Peter was 8 years old, his day camp report described him as,

. . . a pale youngster, very clean and neat looking, and rather girlish in his attitudes. He likes both his school and his teacher. When asked what he wanted to do when he grew up, Peter said, "I might play an instrument." His voice is shrill and he has many prissy mannerisms. In playing, he never seems to do anything quite right; his knees are at an angle when he runs, he wobbles when he hops, and is particularly futile in his attempts to catch a ball. He automatically makes a warding-off gesture first, ducking his head, and closing his hands after the ball has passed. Peter preferred to play "house" rather than engage in sports, but if someone yelled for him to join in a game he would prance over.

Peter is an exceedingly "good" boy. He did a great deal of tattle-telling on all of the minor infractions committed by the other children.

At age 10, much of Peter's adult personality was already determined. His orientation to authority was obedience; to peers it was fear and avoidance. His preferred reaction to stress was withdrawal rather than an attempt to deal with the problem. He had not developed traditional masculine interests or skills and his identification with a weak father had promoted the adoption of a passive and dependent attitude in problem situations. His major source of mastery gratification came from the school, and his musical interests and school success became the primary determinants of his vocational choice.

Jack I.

RELATIONS WITH PEERS. In contrast to Peter, Jack enjoyed peer activities and actively sought acceptance and leadership positions with his age-mates. He shunned solitary play and was only happy when he was surrounded by his "gang." Jack's popularity was due, in large measure, to his competence at traditional masculine skills; he was a fighter, an athlete, and a leader. He was a hero to the other boys because he incorporated the bravado, confidence, and aggression that represent, as we have seen, the ego-ideal of the average young boy.

At 9½ years of age, the following day camp report was written.

Jack was in one of his most charming moods throughout the day camp session. He is becoming increasingly interested in athletics with a desire to

learn new techniques. Several times he did his best to get a baseball game going, but turned down the chance to join in with the girls, considering that beneath his dignity. On the tennis court he was the swaggering male and at any suggestions from the girls he bellowed out, "Shut your mouth." He seems confident of his ability, amiable and poised in competition and occasionally teasing. He was the best swimmer in the group and the only child who could really dive. Jack was one of the more vivid and popular members of the group.

Jack's father conscientiously encouraged Jack's interest in sports, leadership, and fighting prowess. His father started a basketball and baseball team and, of course, Jack played on both teams. His father participated in these athletic groups and rewarded Jack for his efforts at mastery of gross motor skills.

SCHOOL ACHIEVEMENT. Although Jack's wholehearted adoption of traditional masculine activities led to success with his peers, it interfered with his motivation to excel at school. Jack's parents encouraged rebellion toward women. They felt that a man should not be submissive to a woman, and they transmitted this value to their son. Moreover, Jack's peers viewed conformity to the teacher as characteristic of the "sissy," and since Jack wanted their acceptance he was reluctant to become too studious or overly obedient. Jack told the Fels interviewer that he tries not to cry if someone hits him, "I take it, I have to; though when I'm hit in the belly hard, it hurts. They call you sissy if you cry." He was aware of the fact that his friends would not approve of a boy who was too smart, and he told the interviewer that he did not "care much for boys who study too hard." The implication was that this behavior was not appropriate for a "real" boy. Thus, Jack became rebellious in school and was one of the poorer students.

He typically made every effort to be the constant center of attention. One day he kept his four-buckle boots on with all the buckles undone and flapping, and visited the other children's desks, proudly displaying the Air Corp insignia on his shirt. While the class gave answers to arithmetic problems, Jack rested his head on his desk, and yawned and stretched with a dramatic flair. He was sent to the board to do problems and, when told that he didn't need to take his book, he made a pretense of slamming it on his desk. He clowning at the board, pretended to dust the erasers, and rolled his eyes in order to get the attention of the class. On one occasion, the teacher went out of the room briefly and instructed the children to put down their heads and rest. Suddenly she heard screams from the room. When she returned, Jack was standing on his desk doing a comic dance and the class was in stitches.

SUPEREGO AND SOURCES OF CONFLICT. Unlike Peter, Jack was not guilty over his aggressive behavior, and he enjoyed fighting and wrestling. However, his conscience did not allow him to express passive or dependent behavior. He was afraid to cry or show his inner feelings. He put on a facade of independence and denied any need for help or affection from others. Jack and Peter each placed strong prohibitions on specific behaviors, but, while Jack inhibited dependence, Peter inhibited aggression. Nevertheless, the bases for these inhibitions were similar—the desire to retain parental acceptance.

The major differences we saw emerging in Peter and Jack at age 3 had become crystallized and magnified by age 10. The pattern of sex-role interests, relationship to authority, reactions to stress, concern with intellectual competence, and major conflicts were relatively fixed. The future behavior of these two boys will be guided, in large measure, by the needs, conflicts, and reaction patterns laid down during the first decade of their lives.

REFERENCES AND ADDITIONAL READING

1. Abernethy, E. M. Relationships between mental and physical growth. *Monogr. soc. Res. Child Developm.*, 1936, 1, No. 7.
2. Anastasi, A. Intelligence and family size. *Psychol. Bull.*, 1956, 53, 187-209.
3. Anderson, H. H. An experimental study of dominative and integrative behavior in children of preschool age. *J. soc. Psychol.*, 1937, 8, 335-345.
4. Anderson, H. H. Domination and integration in the social behavior of young children in an experimental play situation. *Genet. Psychol. Monogr.*, 1937, 19, 341-408.
5. Anderson, H. H., & Anderson, G. L. Social development. In L. Carmichael (Ed.), *Manual of child psychology*. New York: Wiley, 1954.
6. Anderson, H. H., & Brewer, J. E. Studies of teachers' classroom personalities. I. Dominative and socially integrative behavior of kindergarten teachers. *Appl. Psychol. Monogr.*, 1945, No. 6.
7. Anderson, H. H., & Brewer, J. E. Studies of teachers' classroom personalities. II. Effects of teachers' dominative and integrative contacts on children's classroom behavior. *Appl. Psychol. Monogr.*, 1946, No. 8.
8. Anderson, H. H., Brewer, J. E., & Reed, M. F. Studies of teachers' classroom personalities. III. Follow-up studies of the effects of dominative and integrative contacts on children's behavior. *Appl. Psychol. Monogr.*, 1946, No. 11.
9. Ayers, L. P. The effect of physical defects on school progress. *Psychol. Clin.*, 1909, 3, 71-77.
10. Bayley, N. Factors influencing the growth of intelligence in young children. *Yearb. nat. Soc. Stud. Educ.*, 1940, 39, II, 49-79.
11. Bayley, N. Some increasing parent-child similarities during the growth of children. *J. educ. Psychol.*, 1954, 45, 1-21.

12. Bond, E. A. *Tenth grade abilities and achievements*. New York: Teachers College, Columbia University, Bureau of Publications, 1940.
13. Bonney, M. E. A study of the relation of intelligence, family size, and sex differences with mutual friendships in the primary grades. *Child Developm.*, 1942, 13, 79-100.
14. Bonney, M. E. Relationships between social success, family size, socioeconomic home background, and intelligence among school children in grades III to V. *Sociometry*, 1944, 7, 26-39.
15. Braine, M. P. S. The ontogeny of certain logical operations: Piaget's formulation examined by nonverbal methods. *Psychol. Monogr.*, 1959, 73, No. 475, 1-43.
16. Burks, B. S., Jensen, D. W., & Terman, L. M. *Genetic studies of genius: Vol. 3. The promise of youth; follow-up studies of a thousand gifted children*. Stanford University: Stanford Univer. Press, 1930.
17. Castaneda, A., McCandless, B. R., & Palermo, D. S. The children's form of the Manifest Anxiety Scale. *Child Developm.*, 1956, 27, 317-327.
18. Child, I. L., Potter, E. H., & Levine, E. M. Children's textbooks and personality development: an exploration in the social psychology of education. *Psychol. Monogr.*, 1946, 60, No. 3.
19. Crandall, V. J., Katkovsky, W., & Preston, Anne. Parent behavior and children's achievement development. *Genet. Psychol. Monogr.*, in press.
20. Crandall, V. J., Dewey, Rachel, Katkovsky, W., & Preston, Anne. Parents' attitudes and behaviors and grade school children's academic achievements. *J. genet. Psychol.*, in press.
21. Cronbach, L. J. *Essentials of psychological testing*. New York: Harper, 1949.
22. Davis, A. *Social class influences upon learning*. Cambridge: Harvard Univer. Press, 1948.
23. Davis, A., & Dollard, J. *Children of bondage: the personality development of Negro youth in the urban South*. Washington: American Council on Education, 1940.
24. d'Heurle, A., Mellinger, J. C., & Haggard, E. A. Personality, intellectual, and achievement patterns in gifted children. *Psychol. Monogr.*, 1959, 73, No. 13, 1-28.
25. Durkin, D. Children's concepts of justice: a comparison with the Piaget data. *Child Developm.*, 1959, 30, 59-67.
26. Durkin, D. Children's acceptance of reciprocity as a justice principle. *Child Developm.*, 1959, 30, 289-296.
27. Fitzsimmons, R. Developmental, psychosocial, and educational factors in children with nonorganic articulation problems. *Child Developm.*, 1958, 29, 461-489.
28. Goodenough, F. L. The measurement of mental growth in childhood. In L. Carmichael (Ed.), *Manual of child psychology*. New York: Wiley, 1946.
29. Guilford, J. P. The structure of intellect. *Psychol. Bull.*, 1956, 53, 267-293.
30. Guilford, J. P. Three faces of intellect. *Amer. Psychol.*, 1959, 14, 469-479.

31. Haggerty, M. E., & Nash, H. B. Mental capacity of children and paternal occupation. *J. educ. Psychol.*, 1924, 15, 559-573.
32. Harrell, R. P. Mental response to added thiamine. *J. Nutr.*, 1946, 31, 283-298.
33. Hart, F. W. Ten thousand high school seniors. In *Teachers and teaching*. New York: Macmillan, 1934.
34. Havighurst, R. J., & Breese, F. H. Relation between ability and social status in a midwestern community. III. Primary mental abilities. *J. educ. Psychol.*, 1947, 38, 241-247.
35. Havighurst, R. J., & Janke, L. L. Relations between ability and social status in a midwestern community. I. Ten-year-old children. *J. educ. Psychol.*, 1944, 35, 357-368.
36. Honzik, M. P., Macfarlane, J. W., & Allen, L. The stability of mental test performance between two and eighteen years. *J. exp. Educ.*, 1948, 17, 309-324.
37. Horney, K. *The neurotic personality of our time*. New York: Norton, 1937.
38. Inhelder, Barbel, & Piaget, J. *The growth of logical thinking*. New York: Basic Books, 1958.
39. Jersild, A. T. Characteristics of teachers who are "liked best" and "disliked" most. *J. exp. Educ.*, 1940, 9, 139-151.
40. Jersild, A. T. *In search of self*. New York: Teachers College, Columbia University, Bureau of Publications, 1952.
41. Jersild, A. T. *Child psychology*. New York: Prentice-Hall, 1954.
42. Jones, H. E. The environment and mental development. In L. Carmichael (Ed.), *Manual of child psychology*. New York: Wiley, 1954, 631-696.
43. Kagan, J., Sontag, L. W., Baker, C. T., & Nelson, V. P. Personality and IQ change. *J. abnorm. soc. Psychol.*, 1958, 56, 261-266.
44. Kagan, J., & Moss, H. A. Parental correlates of child's IQ and height: a cross-validation of the Berkeley Growth Study results. *Child Developm.*, 1959, 30, 325-332.
45. Kagan, J., & Moss, H. A. Stability and validity of achievement fantasy. *J. abnorm. soc. Psychol.*, 1959, 58, 357-364.
46. Kagan, J., & Moss, H. A. *Birth to maturity*. New York: Wiley, 1962.
47. Kagan, J., & Moss, H. A. The psychological significance of styles of conceptualization. *Monogr. soc. Res. Child Developm.*, in press.
48. Klausmeier, H. J., Lehmann, I. J., & Beeman, A. Relationships among physical, mental, and achievement measures in children of low, average, and high intelligence. *Amer. J. Mental Def.*, 1959, 63, 647-656.
49. Klingensmith, S. W. Child animism: what the child means by alive. *Child Developm.*, 1953, 24, 51-61.
50. Kurtz, J. J., & Swenson, E. G. Factors related to overachievement and underachievement in school. *Sch. Rev.*, 1951, 59, 472-480.
51. Leeds, C. P., & Cook, W. W. The construction and differential value of a scale for determining teacher-pupil attitudes. *J. exp. Educ.*, 1947, 16, 149-159.
52. Lerner, E. *Constraint areas and moral judgment of children*. Menasha. Wis.: Banta, 1937.

53. Lerner, E. The problem of perspective in moral reasoning. *Amer. J. Sociol.*, 1937, 43, 249-269.
54. Lewin, K., Lippitt, R., & White, R. K. Patterns of aggressive behavior in experimentally created "social climates." *J. soc. Psychol.*, 1939, 10, 271-299.
55. Lippitt, R. An experimental study of the effect of democratic and authoritarian group atmosphere. *Univ. Iowa Stud. Child Welfare*, 1940, 16, No. 3.
56. MacRae, D. A test of Piaget's theories of moral development. *J. abnorm. soc. Psychol.*, 1954, 49, 14-18.
57. Maller, J. B. Cooperation and competition: an experimental study in motivation. *Teacher Coll. Contrib. Educ.*, 1929.
58. Maller, J. B. Vital indices and their relations to psychological and social factors: a study of 310 health areas in New York City with reference to birth rate, death rate, juvenile delinquency, school progress, and intelligence. *Hum. Biol.*, 1933, 5, 94-121.
59. Milner, E. A study of the relationship between reading readiness in grade one school children and patterns of parent-child interaction. *Child Developm.*, 1951, 22, 95-112.
60. Moss, H. A., & Kagan, J. Maternal influences in early IQ scores. *Psychol. Reports*, 1958, 4, 655-661.
61. Munroe, M. Reading aptitude tests for the prediction of success and failure in beginning reading. *Education*, 1935, 56, 7-17.
62. Munroe, M. *Reading aptitude tests, primary form*. Boston: Houghton Mifflin, 1935.
63. Murphy, G. *Personality*. New York: Harper, 1947.
64. Mussen, P. H., Dean, S., & Rosenberg, M. Some further evidence on the validity of the WISC. *J. consult. Psychol.*, 1952, 16, 410-411.
65. Nass, M. L. The effect of three variables on children's concepts of physical causality. *J. abnorm. soc. Psychol.*, 1956, 53, 191-196.
66. Neff, W. S. Socioeconomic status and intelligence: a critical survey. *Psychol. Bull.*, 1938, 35, 727-757.
67. Piaget, J. *The language and thought of the child*. London: Routledge and Kegan Paul, 1926.
68. Piaget, J. *Judgment and reasoning in the child*. New York: Harcourt Brace, 1928.
69. Piaget, J. *The child's concept of the world*. New York: Harcourt Brace, 1929.
70. Piaget, J. *The child's conception of physical causality*. London: Kegan Paul, Trench, Trubner, 1930.
71. Piaget, J. *The moral judgment of the child*. London: Kegan Paul, Trench, Trubner, 1932.
72. Piaget, J. *Play, dreams, and imitation in childhood*. New York: Norton, 1951.
73. Piaget, J. *The origins of intelligence in children*. New York: Int. Univer. Press, 1952.
74. Piaget, J. *Logic and psychology*. New York: Basic Books, 1957.

75. Rosen, B. D., & D'Andrade, R. The psychosocial origins of achievement motivation. *Sociometry*, 1959, 22, 185-218.
76. Sarason, S. B., Davidson, K. S., Lighthall, F. F., Waite, R. R., & Ruebush, B. K. *Anxiety in elementary school children*. New York: Wiley, 1960.
77. Sears, P. S. Levels of aspirations in academically successful and unsuccessful children. *J. abnorm. soc. Psychol.*, 1940, 35, 498-536.
78. Sears, P. S. The pursuit of self esteem: The middle childhood years. Chicago, Ill.: American Psychological Association 1960.
79. Snyder, W. U. Do teachers cause maladjustment? *J. except. Child.*, 1947, 14, 40-46.
80. Sontag, L. W., Baker, C. T., & Nelson, V. L. Mental growth and personality: a longitudinal study. *Monogr. Soc. Res. Child Developm.*, 1958, 23, No. 68, 1-143.
81. Stendler, C. B. Social class differences in parental attitudes toward school at grade I level. *Child. Developm.*, 1951, 22, 36-46.
82. Stendler, C. B., & Young, N. Impact of first grade entrance upon the socialization of the child: changes after eight months of school. *Child Developm.*, 1951, 22, 113-122.
83. Stendler, C. B., Damrin, D., & Haines, A. C. Studies in cooperation and competition. I. The effects of working for group and individual rewards on the social climate of children's groups. *J. genet. Psychol.*, 1951, 79, 173-197.
84. Stendler, C. B., & Young N. The impact of beginning first grade upon socialization as reported by mothers. *Child. Developm.*, 1950, 21, 241-260.
85. Strauss, A. L. The development of conception of rules in children. *Child. Developm.*, 1954, 25, 193-208.
86. Terman, L. M. The gifted student and his academic environment. *Sch. & Soc.*, 1939, 49, 65-73.
87. Terman, L. M., et al. *Genetic studies of genius*. Vol. 1. *Mental and physical traits of a thousand gifted children*. Stanford: Stanford Univer. Press, 1925.
88. Terman, L. M., Merrill, M. A. *Measuring intelligence: a guide to the administration of the new revised Stanford-Binet tests of intelligence*. Boston: Houghton Mifflin, 1937.
89. Terman, L. M., & Oden, M. H. *The gifted child grows up: twenty-five years' follow-up of a superior group*. Stanford: Stanford Univer. Press, 1947.
90. Terman, L. M., & Merrill, M. A. *Stanford-Binet intelligence scale. Manual for 3rd Revision*. Boston: Houghton Mifflin, 1960.
91. Thompson, C. E. The attitudes of various groups toward behavior problems of children. *J. abnorm. soc. Psychol.*, 1940, 35, 120-125.
92. Thompson, G. G. *Child psychology; growth trends in psychological adjustment*. Boston: Houghton Mifflin, 1952.
93. Warner, W. L., Havighurst, R. J., & Loeb, M. D. The social role of the teacher. In W. L. Warner, et al. *Who shall be educated?, the challenge of unequal opportunity*. New York: Harper, 1944.
94. Wechsler, D. *The measurement of adult intelligence*. Baltimore: Williams and Wilkins, 1944.

95. Wechsler, D. *Wechsler intelligence scale for children*. New York: Psychological Corporation, 1952.
96. Wickman, E. K. *Children's behavior and teacher's attitudes*. Commonwealth Fund, 1928.
97. Winterbottom, M. R. The relation of need for achievement to learning experiences in independency and mastery. In Atkinson, J. W. (Ed.), *Motives in fantasy, action and society*. Princeton: D. Van Nostrand, 1958, 450-478.
98. Witkin, H. A., et al. *Psychological differentiation*. New York: Wiley, 1962.

PART **V**

ADOLESCENCE

13

ADOLESCENCE

Adolescence is generally viewed as a critical period, not only in America, but in many other cultures as well—particularly the more technologically advanced societies. References to the “storm and stress” of the years from approximately 11 to 18 are common, both in everyday conversation and in the writings of novelists, dramatists, and poets.

Behavioral scientists tend to agree that adolescence represents a period of particular stress in our society, although they have not always concurred on the reasons for this. Some, particularly the more biologically oriented, have emphasized the adjustments required by the physiological changes associated with puberty, including increases in sex hormone and changes in body structure and function. Others have tended to hold the culture primarily responsible for the adolescent's difficulties. They emphasize the numerous, highly concentrated demands which our society makes upon youth at this time—the demands for independence, for heterosexual and peer adjustments, for vocational preparation, for a basic, guiding philosophy of life. They note that in many cultures where these demands are neither as complex nor as restricted to one limited age period, adolescence is not a particularly difficult period of adjustment.

It has been maintained throughout this book that psychological development proceeds as the result of complex and continuous interactions between a biological organism and its environment. We think that it is important to emphasize our argument again at this point, since adolescent behavior cannot adequately be explained in one-sided terms, whether physiological, cultural, or specifically sexual.

There can be little doubt that the sudden physiological changes that accompany the onset of adolescence require new adjustments. Sudden spurts in height and weight, changes in body structure and function, increased sexual needs all have their effects, as we shall see shortly.

Nevertheless it would be an oversimplification to ascribe the fact that adolescence in our culture emerges as a period of “storm and stress”

solely to physical maturation. If physical factors alone were responsible, we would expect this phenomenon to characterize adolescence in all cultures, since the physiological changes of puberty are common to mankind everywhere. Anthropological evidence, however, indicates that adolescence is not viewed as stressful in all societies. For example, among the Samoans, it is seen as a time of considerable happiness (6).

Furthermore, even in those societies which do recognize a period of difficulty in adjustment comparable to adolescent "storm and stress" in our society, this period does not necessarily coincide with biological puberty. Thus the adjustment difficulty cannot be simply the result of the biological changes of puberty. As Benedict notes:

The most casual survey of the way in which different societies have handled adolescence makes one fact inescapable: Even in those cultures which have made most of the trait [adolescent adjustment difficulty], the age upon which they focused their attention varies over a great range of years. At the outset, therefore, it is clear that the so-called puberty institutions are a misnomer if we continue to think of biological puberty. The puberty they recognize is social, and the ceremonies are a recognition in some fashion or other of the child's new status of adulthood. This investiture with new occupations and obligations is in consequence as various and as culturally conditioned as the occupations and the obligations themselves. If the sole honorable duty of manhood is conceived to be deeds of war, the investiture of the warrior is later and of a different sort from that in a society where adulthood gives chiefly the privilege of dancing in a representation of masked gods. In order to understand puberty institutions, we do not most need analyses of the necessary nature of *rites de passage* [formal ceremonies acknowledging the achievement of adult status]: we need rather to know what is identified in different cultures with the beginning of adulthood and their methods of admitting to the new status. Not biological puberty, but what adulthood means in that culture conditions the puberty ceremony (6, 23).

But if exclusively maturational explanations of adolescent adjustment difficulties can be ruled out, how can we account for the fact that in our society adolescence is viewed as a well-defined stressful period while in other cultures it is not? The answer to this question seems to be that there are cultural differences in the number and extent of the demands made upon the adolescent. For example, among the Samoans the adolescent is not required to inhibit sexual expression, and this fact may help to make adolescent adjustment easier in Samoan culture (43). In American middle-class culture, it is demanded that the adolescent avoid sexual expression.

There are of course many other societal demands which may affect the American adolescent's adjustment. The adolescent must also prepare himself for a job; for changed political and social status as a citizen; for

marriage; for relatively complete separation from the parents and the setting up of an independent household; and for a mature philosophy of life. When we consider that in most cases the American adolescent has had little previous training for any of these tasks prior to puberty, it is not surprising that he should have difficulty in learning them completely and easily in the few short years between puberty and nominal adulthood.

The problem is further complicated by the fact that, despite the crucial importance of coping successfully with social demands, the adolescent finds little consistent guidance from the culture to help him. In fact, becoming aware of, and learning to adjust to the contradictory values, goals, and methods of adults constitute added problems.

Many American adolescents are in the position of knowing that it is important for them to get somewhere in a hurry, but they know only roughly where, and have an even poorer idea of how to proceed. Furthermore, as Lewin (41) has pointed out, they have no real status in our society during this period. The adolescent has renounced childhood, but has not yet been fully accepted as an adult. Partly accepted and partly rejected by the privileged adult group, he "has a position somewhat similar to what is called in sociology the 'marginal [i.e., underprivileged] man.' To some extent behavior symptomatic for the marginal man can be found in the adolescent. He too is oversensitive, easily shifted from one extreme to the other, and particularly sensitive to the shortcomings of his younger fellows. Indeed, his position is sociologically the same as that of the marginal man; he does not wish to belong any longer to a group which is, after all, less privileged than the group of adults; but at the same time he knows that he is not fully accepted by the adult" (43).

A prominent psychiatrist recently made a similar comment when he referred to the adolescent as being in the "not quite stage"—not quite an adult, not quite a child, and not quite sure of himself (42).

A number of psychologists and psychiatrists have discussed much the same problems in terms of "ego identity." They point out that the adolescent in our culture is vitally concerned with assessing his liabilities and assets, trying-on various roles to see which fit him most comfortably. The long-term goals chosen at this time will influence the course of the individual's behavior for the rest of his life. In the words of Erik Erikson, a psychoanalyst, the adolescent is searching for an ego identity; he is searching for an answer to the question, "What am I?"

The central problem of the period is the establishment of a sense of identity. The identity the adolescent seeks to clarify is who he is, what his role in society is to be. Is he a child or is he an adult? Does he have it in him to be some day

a husband and father? What is he to be as a worker and an earner of money? Can he feel self-confident in spite of the fact that his race or religious or national background makes him a person some people look down upon? Overall, will he be a success or a failure? By reason of these questions adolescents are sometimes morbidly preoccupied with how they appear in the eyes of others as compared with their own conception of themselves, and with how they can make the rules and skills learned earlier jibe with what is currently in style. . . .

The danger of this developmental period is self-diffusion. As Biff puts it in *Death of a Salesman*, "I just can't take hold. I can't take hold of some kind of a life." A boy or girl can scarcely help feeling somewhat diffuse when the body changes in size and shape so rapidly when genital maturity floods body and imagination with forbidden desires, when adult life lies ahead with such a diversity of conflicting possibilities and choices (16, 9).

Thus, a sense of ego identity is necessary for a secure footing in life, for it leads to "a sense of knowing where one is going, and an inner assuredness of anticipated recognition from those who count" (18, 118-119).

As we shall see later, in a number of other cultures, the types of adolescent demands cited above either do not exist, or are spread out over larger periods of time. In these cultures, adolescence tends to be less stressful. On the other hand, in some other cultures the demands of adolescence are greater in number than ours or more severe. Needless to say, adolescence in these cultures tends to be rather stressful.

In summary, we do not believe it is possible to gain a proper understanding of adolescent development, in our own or any other culture, without a full awareness both of the biological changes occurring at this time and also of the cultural influences to which the individual is subjected. Although the two usually work together in complex ways, for purposes of exposition our primary emphasis in this chapter will be upon the physical and intellectual changes of puberty and adolescence, and the psychological problems associated directly with these. In the next two chapters, we will turn our attention to the special socialization demands made upon the adolescent in the American culture and the ways in which they compare to those of other cultures.

PHYSICAL CHANGES IN ADOLESCENCE

A host of interrelated physiological and morphological changes occur during the early adolescent period of 11 to 15 years of age. The term puberty, which is applied to these years, is derived from the Latin word *pubertas* meaning *age of manhood*. Puberty refers to the first phase of adolescence during which the reproductive apparatus matures. Usually

puberty, or onset of sexual maturity, is dated from the first menstrual period (i.e., the menarche) in girls, and the emergence of pigmented pubic hair in boys (62).

Glandular Changes

The physiological and bodily changes that occur at this time are due, in part, to an increased output of the *gonadotropic* hormones of the anterior pituitary gland. This gland, situated in the brain, governs and controls the hormone balance of the body. The gonadotropic hormone stimulates the activity of the gonads or sex glands, thus increasing the production of sex hormones and the growth of mature sperm and ova in males and females. These sex hormones—testosterone in males and estrogen in females—in combination with other hormones of the body, cause the growth of bone and muscle and lead to the growth spurt (62).

Growth Spurt

The growth spurt refers to the sudden increase in height and weight that occurs during adolescence. This increase varies widely in intensity, duration, and age of onset from one child to another. For most boys, it begins at age 13 and lasts until 15, the fourteenth year being the year of maximum growth. During this two-year period the average boy grows about 8 inches (range of 4 to 12 inches) and gains about 40 pounds (range of 15 to 65 pounds).

For most girls, the growth spurt begins two years earlier, at about age 11, and lasts until about 13, with the twelfth year as the year of maximum growth. On the average, however, girls do not grow as much as boys during this period (about 5 or 6 inches) (62). (See Fig. 47.)

Beginning at age 13 in girls and at age 15 in boys, the rate of increase in height slows down rapidly and after about three years practically ceases. The popular notion that girls mature earlier than boys stems primarily from the fact that girls obtain their adult height and weight about two years earlier than boys.

As puberty approaches, the body proportions of both boys and girls undergo change also, though again the change is later among boys. The baby face of childhood begins to disappear. The low forehead becomes higher and wider. The mouth widens and the flat lips become fuller. The slightly receding chin of childhood begins to jut out. Moreover, the relatively large head characteristic of childhood becomes smaller in proportion to total body length. This is due in large measure to the fact that during this period the extremities are growing at a faster rate than the

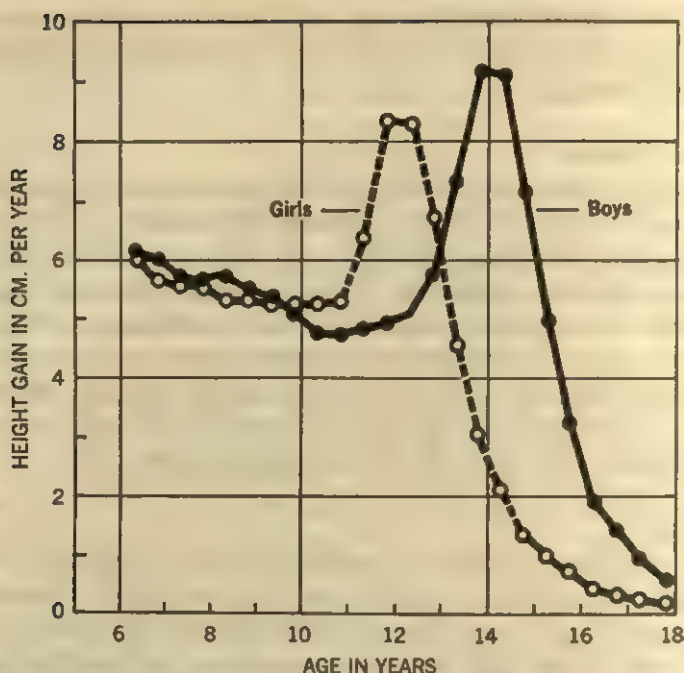


FIG. 47. Adolescent spurt in height growth for girls and boys. The curves are from subjects who have their peak velocities during the modal years 12-13 for girls, and 14-15 for boys. (Actual mean increments, each plotted at center of its $\frac{1}{2}$ year period. Data from Shuttleworth, 1939, tables 23 and 32. With permission of Blackwell Scientific Publications, Ltd.)

head. By age 10, the average child's head has achieved 90 percent of its mature length, and by age 15 it has practically reached adult size. During these years the extremities are still growing rapidly.

Along with the increases in height and weight during this period, less obvious physical changes are occurring too. Almost every part of the body undergoes some change at adolescence and many tissues increase in size (62). The heart grows faster, all aspects of the reproductive system increase in size, but brain size does not change noticeably. Proportionately speaking, there is a decrease in fat that lies underneath the skin, and the proportion of bodily weight that is attributable to fat decreases during this period (62). (See Fig. 48.) As we have already seen, the bones change in size, proportion, and shape as the child grows older. They change internally also. It will be recalled that in early childhood the composition of the bones is such that there is a preponderance of cartilage

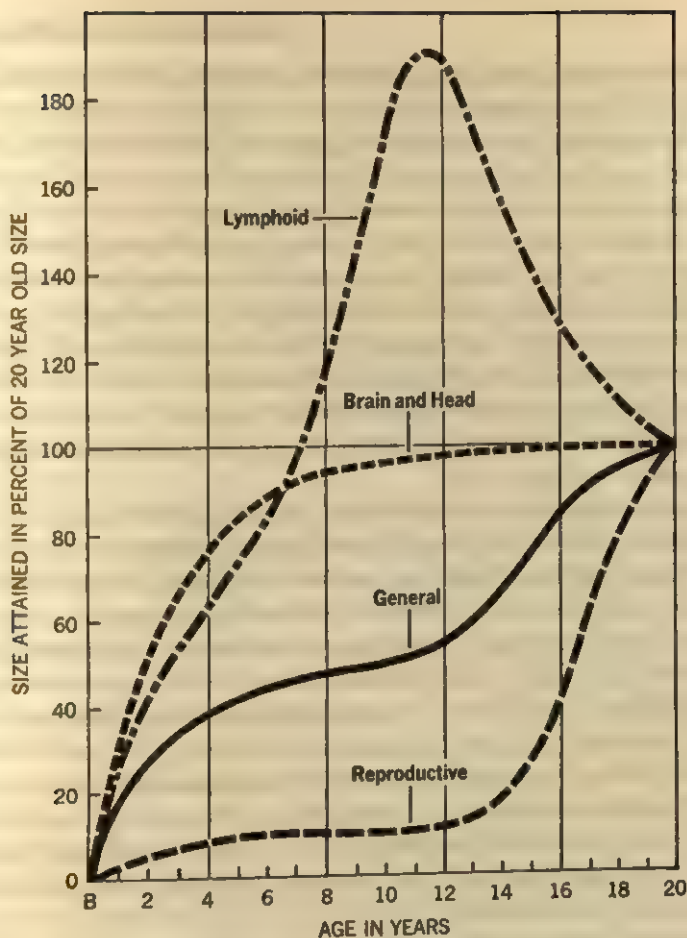


FIG. 48. Growth curves of different parts and tissues of the body, showing the four chief types. All the curves are of size attained and plotted so that size at age 20 is 100 on the vertical scale. (Redrawn from Scammon, 1930a, *The measurement of man*, Univ. Minn. Press.)

Lymphoid type: thymus, lymph nodes, intestinal lymph masses.
Brain and head type: brain and its parts, dura, spinal cord, optic apparatus, head dimensions.

General type: Body as a whole, external dimensions (except head), respiratory and digestive organs, kidneys, aortic and pulmonary trunks, musculature, blood volume.

Reproductive type: Testis, ovary, epididymis, prostate, seminal vesicles, Fallopian tubes.

(With permission of Blackwell Scientific Publications, Ltd.)

and fibrous tissues, with less mineral matter than is found later. This makes the bones somewhat spongy and soft. Because of this they are liable to deformity. But as the bones increase in size, the cartilage begins to calcify, making the bones harder, denser, and more brittle. This process of ossification speeds up at puberty. By the age of 17 the average girl's bones "should be mature not only in size, but also in ossification" (30).

Just as in the case of the growth spurt, the average boy's skeletal development is relatively delayed. For example, the average boy of 9 is about one year behind the average girl in osseous development. By 11 he is about 18 months behind, and after 12 about two years. This relative situation persists until the girl has reached maturity in her osseous development (64). The average boy's skeletal development is not completed until around 19 years of age.

A similar situation exists with regard to muscular development. During adolescence, both boys and girls show marked increases in the percentage of body weight occupied by muscles. In the average 8-year-old child, the weight of the muscles makes up about 20 percent of gross body weight. By 15, however, the percentage has increased to 32 percent, and by 16, to 44 percent. After 16, little increase in the size or weight of muscles takes place. These are average figures which mask sex differences, however. Again the boy's development tends to be more delayed. In girls, the most pronounced increase in muscle tissue in relation to total body weight comes between 12 and 15 years of age; in boys it does not occur until around 15 or 16 years (30). Of course, the ultimate development of the girl's muscles is not as great as the boy's, and girls are not as strong as boys at maturity.

As might be expected, motor performance improves as these changes are occurring. It has been found that among girls, measures of coordination, strength, speed, and accuracy all improve with age up until about age 14. After that, they either fail to improve or decline. In contrast, the mean performance of boys on all these tests increases steadily up to 17 years. Despite marked individual differences on these tests, boys generally do better than girls on all the measures, and this superiority increases with age.

Changes in the Reproductive System and Sex Characteristics

The most dramatic physical changes of adolescence occur in the reproductive system and the secondary sex characteristics. For girls, the reproductive organs include the *ovaries*, which produce the ova (i.e., eggs) required for conception; the *fallopian tubes*, through which the

ova migrate to the uterus; the *uterus*, which houses and nourishes the embryo and fetus; and the *vagina*. The secondary sex characteristics include breasts, pubic and axillary hair, and increased width and depth of the pelvis (62).

For boys, the reproductive apparatus includes the *testes*, which manufacture the sperm; the *penis*, which is the external organ through which the sperm are ejaculated; and a number of interrelated body organs and tubes which collect the sperm, add fluid to them, and convey them from the testes to the penis. The secondary sex characteristics include pubic, axillary, facial, and bodily hair (which develop in that order chronologically), and changes in voice. Although there is much variation in the timing of these events, the most typical developmental sequence is as follows (62).

In the boy, the first outward sign of change in the reproductive apparatus is increased growth of the testes and scrotum (sac which contains the testes). This is followed by the first signs of pubic hair. Soon after the appearance of pubic hair (about 12-14 years of age), the penis begins to grow rapidly. The first ejaculation of semen is likely to occur about one year after the appearance of pubic hair. Axillary and facial hair usually develop about two years after the first appearance of pubic hair (62).

In girls, the appearance of the breast bud (about 11 years of age) is one of the first clear, external signs of reproductive change. The breast bud consists of an increase in the diameter of the areola and growth of breast tissue, which form a small mound on the chest. The next three stages of growth involve increased growth of the breast and the projection of the papilla (i.e., nipple). The breast bud usually appears a year or two prior to the time of menarche (about age 13), and close to the time when uterine growth and the first appearance of pubic hair is noted.

Age of Menarche

The average age at which American girls reach menarche (begin menstruation) is about 13 years. However, there is considerable variation and, although 97 percent of girls reach menarche between 11 and 15, some reach it as early as the ninth or as late as the twentieth year (11). Recent evidence suggests that menarche is occurring earlier today than it did 50 or 100 years ago. In 1900, the average American girl reached menarche at 14; the current average is 13 years of age (62). The best explanation for this change is that better health and nutrition have accelerated this maturational process. The earlier onset of menarche is also

accompanied by increased height and weight in comparison with norms reported three or four decades ago.

There is a persistent popular belief that girls in tropical countries reach puberty earlier than girls in the more temperate zones, such as the United States. Available research data, however, do not support this notion. The average age of menarche for various tropical and semitropical countries ranges from 13.5 to 14.5 years (11).

On the other hand, far northern girls, such as the Greenland and Labrador eskimos, do appear to mature quite late (around age 16). Northern European girls also appear to reach the menarche somewhat later than American girls (from 14½ to almost 16 years).

The various hypotheses which have been developed to account for variations in menarchial age are beyond the scope of this book. However, it should be emphasized that the menarche should be viewed only as a reflection of the individual's general physiological state (61). As such, it is subject to a wide variety of influences ranging from genetic factors to nutritional conditions.

Pubertal Age in Boys

Information about the onset of puberty is not so extensive in the case of boys as it is for girls. However, in a relatively complete study (55), the status of primary and secondary sexual development in 1,475 normal, representative New York males, ranging in age from birth to 25 years was investigated. Each subject was classified as either (1) prepubescent; (2) in one of four stages of pubescence (progressively greater pubic hair development, increase in size of penis and testes); or (3) fully mature. Marked individual variations were noted in the rates at which normal boys mature sexually. For example, while 17 percent of the 20- to 21-year-old males were still in the last stage of pubescence, 7 percent of the 14-year-olds were already fully mature. Similarly while 6 percent of the 14-year-olds had not yet reached pubescence, 4 percent of the 10-year-olds were already pubescent.

The limited number of other studies of pubertal age available are in essential agreement with these findings. In general, they show that boys develop noticeable pubic hair about the same time that girls begin their menses—again between 13 and 14 years, on the average; and that they show the same sorts of individual variations in age of pubescence as girls (a range from 10 to 15 years) (2, 11, 12). If we were to assume that the development of pigmented pubic hair in boys is really equivalent to the menarche in girls, it would appear that both boys and girls reach com-

parable stages of adolescence at approximately the same age. But as we have already emphasized, the selection of these two events as criteria of puberty has arisen mostly from convenience, and there is no necessary reason for assuming their equivalence.

Adolescent Fertility

Perhaps the age at which the adolescent achieves fertility (i.e., the ability to have children) might be considered a more convincing criterion of maturity. Unfortunately, however, such data are extremely difficult to obtain. There is some evidence to suggest that both boys and girls tend to remain sterile for a considerable period after the development of pubescent hair or the menarche, but precise information is lacking, particularly in the case of boys (61). One team of investigators (45) recorded the ages of the menarche and of the first conception in various groups among which promiscuity was frequent from an early age. They found that "conception is extremely unlikely to occur during the first year following the menarche, and that for a period of four to six years it is less likely than after full maturity but does occur with increasing frequency. This period of adolescent physiologic sterility progressively shortens as the menarche is delayed. Conception can occur very early, but it seldom does so before the age of 16, regardless of the age at the menarche" (45).

Interrelationships among Growth Factors

Although we have discussed the changes in skeletal, muscular, and reproductive growth separately, the timing of these processes is highly correlated. Thus, the correlation between age of height spurt and time of beginning testes growth in boys is .86. For girls, the correlation between age of menarche and beginning breast-bud appearance is also .86, and the correlation between age of menarche and time of appearance of pubic hair is .70. These correlations suggest that in any one adolescent there is likely to be a close correspondence between the age at which he reaches his maximum rate of growth in height and weight and the age at which he reaches puberty (11, 56, 58). Thus, the boy who shows the growth spurt early will develop pubic hair early; the girl who has early menarche will show early breast development.

Even before maximum growth rate is achieved, measures of skeletal activity are predictive of age of menarche (58). During the preadolescent period, the bones of the legs, arms, hands, and feet increase in length and begin to join together or fuse. The rate at which this fusion

of the bones occurs is closely related to the reproductive maturity of the adolescent. Greulich has studied the skeletal changes that occur in the hand by X-ray analyses, and has found that there is a close correspondence between age of menarche in the girl and the age at which the bones of the fingers become fused (27). Similarly, appearance of pubic hair in boys is closely associated with skeletal development of the hand (27). Similar relationships seem to hold among other aspects of skeletal and muscle growth on the one hand, and primary and secondary sexual development, on the other. In brief, there tends to be a general "going togetherness" of various maturational factors at this period of the individual's life (49).

RELATION BETWEEN PHYSICAL DEVELOPMENT AND PERSONALITY

In previous chapters we have referred to the term *self-concept*. This phrase refers to the individual's assessment, partly unconscious, of his position on a variety of dimensions that the social environment regards as important. Some of the basic dimensions upon which the individual in our culture assesses himself include *good* versus *bad*; *intelligent* versus *incompetent*; *adequate body image* versus *inadequate body image*.

GOOD VERSUS BAD. Each adolescent has evolved internal standards of morality which define certain behaviors as *good*, others as *bad*. A person's evaluation of how *good* or *bad* he is depends on how well he lives up to the behavioral standards which he regards as *good*, in contrast to those which he regards as *bad* or *evil*. Honesty, absence of resentful thoughts, inhibition of aggression, inhibition of sexually promiscuous behavior, obedience to parents, and sincerity are some of the major variables considered in the individual's evaluation of his own goodness or badness.

INTELLIGENCE VERSUS INCOMPETENCE. Western civilization places a high value on intelligence and knowledge. Consequently, the adolescent is likely to compare his own intellectual ability with that of others and with his own ego ideal.

BODILY CHARACTERISTICS: ADEQUATE VERSUS INADEQUATE BODY IMAGE. Every culture has certain arbitrary rules about the desirability or undesirability of certain bodily characteristics. Possession of desirable characteristics is typically associated with sexual attractiveness and other aspects of group acceptance. Failure to develop bodily characteristics that the culture judges to be desirable is apt to lead to social rejection and feelings of sexual inadequacy. Members of Western culture equate certain

anatomical attributes with strength or weakness and with sexual attractiveness or unattractiveness.

Through a complex set of mediated generalizations, the adolescent equates his ability to have dates and to establish satisfying heterosexual relationships with aspects of his physique and appearance. Thus, the boy in American culture is concerned with his height, the breadth of his chest and shoulders, his muscular development, and the amount of facial and bodily hair. The girl is concerned with facial features and her figure.

Since possession of acceptable or unacceptable bodily characteristics is so important for the adolescent's self-confidence, there is an important relation between his rate of physical maturation and his personality. The adolescent's concern with his body is fostered by . . . increasing identification with culturally determined ideals concerning appropriate physical characteristics for men and women.

Since the peer group becomes the chief source of his status and prestige, the adolescent desires to conform to the specific norms of body proportions and growth prevailing in his own limited circle. Now, for the first time, physical attractiveness becomes a crucial determinant of the girl's sociometric status among her peers of both sexes. In similar fashion, the boy's sociometric status is largely governed by his relative degree of masculinity in athletic prowess (1, 161).

The important role of physical characteristics in the adolescent's self-evaluation was demonstrated in a study by Jersild (32). When junior-high-school students were asked what they did and did not like about themselves, they mentioned physical characteristics more often than either intellectual or social characteristics. This trend was much less marked in senior high school.

Interviews with a group of 1,925 girls from 11 to 18 years of age also revealed an unusually strong concern with appearance. To the question, "What would you like to change about yourself if you could—your looks, your personality, or your life?" 59 percent mentioned some aspect of their physical appearance, whereas only 4 percent mentioned a desire for greater ability (13).

Furthermore, there is evidence to suggest that when they compare themselves with the stereotyped ideal of their own peer groups, most adolescents are not entirely satisfied with the results. When tenth-grade boys and girls were asked whether they desired a change in their physical selves, the majority of both sexes replied that they did (23).

The commonest complaint among both boys and girls concerned facial defects, principally skin disturbances. Other desired changes reflected quite clearly stereotyped masculine and feminine ideals. There was a

distinct association in the minds of these adolescents between largeness and masculinity, on the one hand, and smallness and femininity, on the other (48). Boys wanted to have broader shoulders, more rugged builds, and larger chests. Those boys who were short wanted to be taller. Girls wanted slimmer hips, smaller feet, smaller waist, and a "good shape." Tall girls wanted to be shorter. When children from Grades 4 to 14 were asked to complete the phrase, "I wish I were," more girls than boys at all grade levels (4-12) wished to be "smaller," while boys wished for increased size (8).

Specific morphological characteristics are interpreted by the adolescent as signs that he will or will not be successful in attracting a member of the opposite sex. There is, of course, no rational basis for a boy's belief that his height or the presence of facial hair has anything to do with his capacity for romance. However, most members of our culture behave as if this were true. The typical 16-year-old boy wishes he were six feet tall, had well-developed muscles, bodily and facial hair, broad shoulders, and a deep voice (48). The boy who does not meet any of these standards is likely to have a poor image of his body—an image that can become a serious source of anxiety. The age at which physical maturity is reached, therefore, may have significant psychological consequences. A late-maturing boy who has no facial hair and is slight of build at 15 years is likely to feel inferior to his peers. He will be reluctant to ask girls for dates for fear that they will reject him. He may avoid athletic participation because he is afraid that he will make mistakes and be humiliated in front of others.

Investigators at the University of California (36, 37, 46, 47) have compared the fantasies and behavior of adolescents who matured very early with those who matured late. In one intensive study of the relation of physical maturing to behavior among boys, skeletal age was used as an index of maturity (34). The subjects included 16 boys, ages 12 to 17, who were currently accelerated, and 16 boys who were currently retarded in maturing. Using social observational data and peer-group ratings as measures of behavior, the investigators found that the later maturers tended to engage in more attention-getting behaviors, and were rated more restless, talkative, and bossy. They were also less popular than the early maturers, fewer of them were leaders, fewer were able to laugh at themselves, and fewer were considered matter-of-fact and unaffected. The authors conclude that:

Those who are physically accelerated are usually accepted and treated by adults and other children as more mature. They appear to have relatively little need to strive for status. From their ranks come the outstanding student-body

leaders in senior high school. In contrast, the physically retarded boys exhibit many forms of relatively immature behavior: this may be in part because others tend to treat them as the little boys they appear to be. Furthermore, a fair proportion of these boys give evidence of needing to counteract their physical disadvantage in some way—usually by greater activity in striving for attention, although in some cases by withdrawing (34, 148).

Thus it appears that the boys who mature late are anxious about their deviant status, and this anxiety leads to a variety of maladaptive behaviors designed to gain attention and recognition from others. Moreover, boys who matured late, in contrast to early maturers, revealed in their stories deeper feelings of inadequacy and anticipations of rejection by the social environment (46). They were also rated as having stronger needs for social acceptance (47).

The authors concluded:

The boy whose physical development is retarded is exposed to a socio-psychological environment which may have adverse effects on his personality development. Apparently being in a disadvantageous competitive position in athletic activities, as well as being regarded and treated as immature by others, may lead to negative self-conceptions, heightened feelings of rejection by others, prolonged dependent needs, and rebellious attitudes to parents. . . .

The physically accelerated boys, on the other hand, are likely to experience environmental circumstances which are much more conducive to good psychological adjustment (46, 252-253).

Early- and late-maturing boys and girls also appear to differ in their interests. In a study of pre- and postmenarchial girls of matched ages, Stone and Barker (6) found that the postmenarchial girls were more interested in social activities with the opposite sex, in personal adornment, display of person, and in daydreaming. On the other hand, menarchial girls were less interested in games and sports requiring vigorous activity. On a test of masculinity-femininity, early-maturing boys obtain more masculine interest scores, and early-maturing girls more feminine interest scores than their later maturing peers. Similarly, a study of adolescent boys revealed a relatively high correlation (.51) between amount of male hormone in the urine and maturity of interests and attitudes (59).

While late maturing generally appears to have a handicapping effect, we must not forget that many other factors will also affect the individual adolescent's social and emotional adjustment. As we shall see, the early maturer who is nagged by skin blemishes or other physical disturbances, by membership in a minority group, or by adverse factors in the home may have a more difficult time adjusting socially than the slightly late maturer, who is more fortunate in other respects.

Significance of Menstruation

Menstruation means much more to the adolescent girl than just a simple physiological readjustment. It is a symbol of sexual maturity—of her future role as a wife and mother. Since the reactions of the girl to menstruation may generalize so broadly, it is vital that her initial experience with this phenomenon be as favorable as possible.

Many girls look forward calmly to the onset of menstruation, and some receive it proudly, as a sign of increased status. Unfortunately, since many notions⁸ concerning the shamefulness or even dangerousness of menstruation have persisted in our time, there are other girls who fear and hate it. In a study of the emotional reactions of 475 girls to the onset of their menses, it was found that 51 percent reported their reaction as one of indifference; 4 percent said they were curious and interested; 12 percent were chagrined; 1 percent were terrified; and only 6 percent were delighted and proud (10).

Probably one of the main reasons that girls may react negatively to menstruation is that they are influenced by the negative attitudes of others. Thus, if a menstruating girl's parents and friends act as though she requires sympathy for her "plight"—an attitude implied in such prevalent euphemisms for menstruation as "the curse," "being unwell," etc.—the girl herself is likely to adopt similar attitudes toward her menstruation.

Negative reactions to menstruation may also stem in part from physical discomfort. During the early years of menstruation, when the menses are likely to be quite irregular, a number of girls experience disturbing symptoms in relation to their menstrual period. Among the more common of these are: headaches, backaches, cramps, and severe abdominal pain (1, 30). However, in most cases where such initial disturbances occur, they tend to disappear as puberty progresses and menstruation becomes more regular.

Another factor which may adversely affect the girl's reaction to her first menstruation arises from the similarity between menstruation and other physical reactions. Since the menstrual flow may be similar to other types of bleeding, the girl who has been inadequately prepared for men-

⁸ Strong tabus still attend menstruation in many of the world's societies. In Bali, menstruation is considered so shameful that its significance is not even socially recognized. The Manus equate menstruation with injury. Among many tribes, such as the Arapesh, the menstruating woman is assumed to have special and dangerous powers. As a result, women may be isolated in special huts during their periods, or prevented from preparing food for their families, since it is thought they may magically poison them. In some tribes, menstruating women may not tend gardens because it is believed that the plants will wither and die (44).

stration may, and too frequently does, gain the impression that she has been injured (15).

There are, of course, other reasons why the adolescent girl may react negatively to menstruation. For example, if she has been unable to establish a satisfactory feminine identification, she may be disturbed by having her attention bluntly directed by the onset of menstruation to the fact that she is a woman and can do nothing about it.

Many of these negative reactions could be avoided or alleviated, if the parent employed a wise and understanding approach to the problem. By seeing that the girl receives adequate medical care in the case of physical difficulties; by explaining to her the naturalness of the phenomenon; and by showing pride and pleasure in her greater maturity, the parents—particularly the mother—can help to make the onset of menstruation a happy, rather than a feared or hated event. This of course will have consequent benefits for the girl's whole future sexual and social role as a woman.

Nocturnal Emission

Just as the onset of menstruation may cause concern to the pubescent girl, so may the appearance of nocturnal emissions surprise and worry the pubescent boy. By nocturnal emission is meant ejaculation of the seminal fluid during sleep. According to Kinsey (38), approximately 83 percent of males report experiencing nocturnal emissions at some time in their lives. Frequently, but by no means always, these emissions are accompanied by erotic dreams.

It seems to be true that boys as a group worry less about nocturnal emissions than girls do about menstruation, perhaps partly because boys are more often able to talk freely among themselves about such matters. Nevertheless, many boys do not gain proper instruction from their peers or parents, and torture themselves with unnecessary fears.

Adolescent Awkwardness

There is little doubt that many adolescents go through a period of awkwardness. Many authors have tended to attribute this difficulty to irregular growth rates in muscles and bones. However, actual examination of the data of skeletal and muscular growth during the period casts doubt on this interpretation (62). On the other hand, it does seem likely that the child who has suddenly undergone a marked growth spurt may well experience difficulties in adjusting to his changing physical dimensions.

Probably more important, however, are the social and psychological factors that contribute to the problem of adolescent awkwardness. For one thing, the rapidly changing adolescent is likely to be self-conscious about his new physical dimensions. These dimensions frequently "do not seem like me"—in other words, they are at variance with his previous acquired body image, and this in itself may lead to awkward postures and gestures. In a related fashion, the growth of primary and secondary sex characteristics, including breast development in girls and voice changes and sex-organ development and function in boys, may also heighten self-consciousness.

For example, the emergence of mature breasts, which is a sign of sexual maturity, leads to embarrassment in those girls who have strong anxiety about their possible attractiveness to boys, or about the fast approaching responsibilities of adulthood. Such girls may be apprehensive about heterosexual interactions, and, as a result, hunch their shoulders or walk in an awkward manner in an attempt to hide this sign of sexual maturity. The development of this awkward posture may be, of course, unconscious.

Another factor contributing to adolescent self-consciousness and consequent awkwardness is that American adults tend to tease adolescents a good deal, both in daily life and through movies and television—though hopefully the trend is diminishing. As we shall see in the following chapter, a large number of demands for new social adjustments are made upon adolescents, and they recognize that more mature and responsible behaviors are expected of them. They are expected to be more mature in their social interactions; they should appear more poised, more interesting, more confident. Adolescents try to handle these new responsibilities successfully. However, they still feel self-conscious and inadequate in this new role, and the subsequent uncertainty and anxiety can lead to odd postures, heightened restlessness—in short, to the typical awkwardness of the adolescent years.

INTELLECTUAL GROWTH AT ADOLESCENCE

We have already seen that, throughout the adolescent years, the individual continues to develop physically. But what about his intellectual capacities? Does intellectual capacity continue to expand as physical growth in adolescence proceeds, or does it mature more quickly than physical characteristics?

The answer to this question depends on what we mean by the term *intellectual capacities*. Mental ability, as measured by the Wechsler-

Bellevue Intelligence test, continues to rise during the years 13 to 16 and then begins to stabilize (see Fig. 49).

The rise during the early adolescent years is related, in part, to the content of the questions that are asked on the Wechsler-Bellevue Intelligence Scale. The scale used with adults and adolescents contains ten subtests—five dealing with language and five with perceptual organization. The language test includes vocabulary, general information, and arithmetic reasoning. The nonlanguage tests include arranging a series of pictures to make a coherent story, puzzles, and construction of complex designs with blocks.

Since vocabulary level and general information are apt to increase markedly as a result of high-school and college educational experiences, we would expect scores on these tests to grow also during this period. Data from the University of California Growth Study (5) indicate that some people continue to gain in IQ score during the years 16 to 21, a time when most adolescents' scores remain constant. As might be expected, the individuals who showed increases, in contrast to those who showed no change or a slight decrease in IQ, had entered college after high-school graduation. It will be recalled that IQ increases during ages 6 to 10 were associated with high achievement motivation. Presumably some of the adolescents who went on to college had a more intense desire to perfect intellectual skills than those who did not advance their education. It appears that an interest in a college education, which can be in-

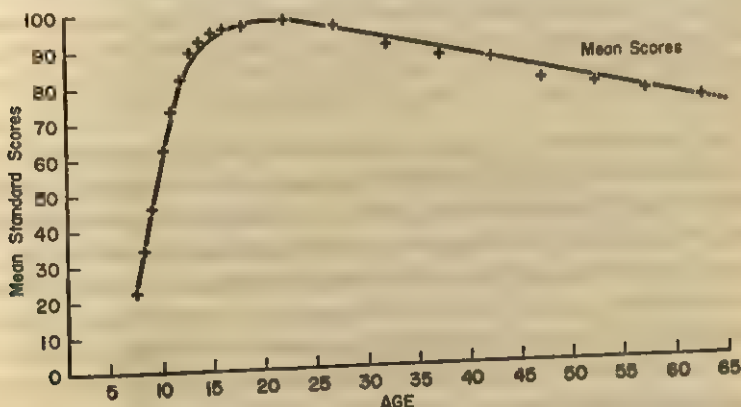


FIG. 49. Curve of mental growth and decline. Wechsler-Bellevue Intelligence Scale. Ages 7-65. (From D. Wechsler, *The Measurement and appraisal of adult intelligence*. Baltimore: Williams and Wilkin, 1958. With permission of Williams and Wilkins Co., and D. Wechsler.)

terpreted as an index of strong achievement motivation, together with the exposure to academic problems in college, seem to facilitate IQ increases during the late adolescent years.

Piaget's View of Adolescent Thinking

According to Piaget, Inhelder, and their colleagues (31, 50) the early adolescent years are characterized by the attainment of the final stage of intellectual development, the adoption of formal thinking. By age 15, the average child is freed from rigid dependence upon concrete events and is able to think about problems in the abstract, without recourse to concrete objects. His thinking now has a logical character. It will be recalled from Chapter 12 that the preadolescent child had difficulty reasoning about objects that were not present in reality. The adolescent is able to reason (or perform formal operations in Piaget's language) by hunches or hypotheses. For example, during the stage of formal operations, the child is capable of reasoning about the differential effect of heat upon metals of differing composition, able to think about the differential effect of a variety of events on any one object.

More important, he can evaluate the logical character of his thought. During the preadolescent years, the stage of concrete operations,

The child has no powers of reflection—i.e., no second order thoughts which deal critically with his own thinking. No theory can be built without such reflection. In contrast, the adolescent is able to analyze his own thinking and construct theories. . . .

Consider a group of students between 14 and 15 years and the baccalaureate (an examination taken about 18 years of age). Most of them have political or social theories and want to reform the world; they have their own ways of explaining all the present day turmoil in collective life (31, 340).

Adolescent thought is characterized both by the ability to think about or evaluate thought and the ability to imagine what *might* be possible. The content of science-fiction stories is the best example of this new capacity—the ability to imagine complex sequences in nature which, although speculative, are logical. The imaginary behavior of the 6-year-old is of a different order. The 6-year-old imagines in concrete terms, (i.e., he imagines he is a fireman, his mother is a nurse, or his dog is a lion). In these cases, concrete objects (himself, the mother, the dog) are necessary ingredients for the fantasy.

The stage of formal operations marks the end of a process that takes over twelve years to mature. Let us briefly summarize Piaget's description of thought development.

SENSORIMOTOR STAGE (0-2 YEARS). The child has not acquired language, and symbolic activity is minimal. During this period the child learns about the permanent nature of objects.

PRECONCEPTUAL AND INTUITIVE THOUGHT (2-7 YEARS). With the beginning of language, thought becomes possible. The preschool child has not yet learned some of the basic physical constancies of his environment. That is, he behaves as though he did not know that the weight, volume, length, or quantity of objects remains constant despite changes in the shape of the object or the context in which the object appears. Thus, a 5-year-old will acknowledge that two identical jars contain the same number of gum balls, but if the balls in one jar are emptied into a tall, thin jar, the child decides frequently that the tall, thin jar contains more balls. The 5-year-old's understanding of the concept of quantity is not yet stable and abstract; it depends on the perceptual characteristics of the situation.

Similarly, if two sticks of equal length are placed side-by-side so that the end points coincide, the child will admit they are equal, but if one stick is moved forward an inch, he will say that it is longer. Once again, the young child does not realize that the length of a particular stick is constant and not dependent on the perceptual context of the object.

CONCRETE OPERATIONS (7-11 YEARS). Now the child becomes capable of reasoning about concrete objects. Some of the major logical rules he uses have to do with the ordering of objects in a series of "greater than" and "less than," and the relation between the whole and the sum of the parts. For example, a 5-year-old behaves as though he did not comprehend that the whole and the part were separate concepts. If a 5-year-old is shown 20 wooden beads (18 brown and 2 white) and asked, "Are there more *brown* beads or more wooden beads?" he is apt to say, "There are more brown beads"; whereas an 11-year-old will probably answer accurately. The 5-year-old behaves as though he were able to think about either the whole or the parts, but not about both simultaneously. When the parts of a whole are introduced into the child's perception, it is as though the whole is in some way destroyed and does not exist.

To phrase this behavior in more formal terms, the 5-year-old has difficulty understanding the following rule: The whole equals Part A plus Part B is *equivalent to* The whole minus Part A equals Part B.

FORMAL OPERATIONS (11-15). The novel element in this stage is the ability to reason about hypotheses and to deduce conclusions without the aid of concrete objects. The adolescent is able to reason about a hypothetical state of affairs (e.g., a child might be asked, "What is wrong

with this sentence, "They found a three-year-old skull of an animal with five feet and three heads that lived to be fifty years'"?).

The 7-year-old might object to this problem by saying that there are no animals with five feet and three heads. The adolescent is capable of accepting this fanciful hypothesis and reasoning out the answer.

Second, the adolescent is able to combine mentally several rules or operations in solving a problem. Thus when asked to find the area of a circle with a two-inch radius, he is able to combine sequentially the three operations involved in solving the equation πr^2 to arrive at the answer of 12.56 square inches.

The 11-year-old, in contrast to the 7-year-old, is apt to have a mental plan of action when he is confronted with a problem. He anticipates what steps he is going to perform and can call on various kinds of information at his disposal to solve the problem.

In short, Piaget emphasizes the ability to reason as the critical process in intellectual development. The standard tests of intelligence do not emphasize these skills, but rely more heavily on acquired knowledge (level of vocabulary, amount of information). Guilford's work on the basic factors of intelligence (reasoning, memory, evaluation) is much closer to Piaget's theoretical notions.

We have presented Piaget's basic theoretical ideas in the terms he uses because we feel the student should have an understanding of Piaget's major contributions. It would have been possible to translate some of his concepts and findings into the language American psychologists use, but the student might then be unclear about the essence of Piaget's thinking.

However, the amount of space devoted to Piaget should not be interpreted as an indication that all of his conclusions are universally accepted. In order to balance the ledger, let us consider some of the limitations in Piaget's work and some of the criticisms that have been directed at his research.

First, Piaget's experiments with children often involve the use of adult language. That is, the child may be asked, "Which is *longer*, this stick or that stick?" "Which cup has *more* beads?". The answer the child gives to these questions depends on his understanding of the words *longer* and *more*.

For example, in one experiment the child is shown two identical jars filled with beads; the examiner then pours the beads of one jar into a tall, thin container, and asks "Which jar has *more* beads?" Typically, the 6-year-old points to the tall, thin jar.

Piaget concludes from this experiment that the child has not learned

that a certain quantity remains constant despite transformations of location or shape. However, the young child's understanding of the word *more* is probably closely tied to the perception of height (i.e., higher means more—these are synonyms for the child). It is possible, therefore, that some of Piaget's experiments demonstrate how the child gradually acquires the adult's understanding of words like *more*, *greater*, *heavier*, and other terms of quantity.

Second, Piaget's emphasis on the importance of reversibility, class inclusion, and serial-ordering operations as critical factors in intellectual growth, are most relevant to mathematics and physics. This is why Piaget typically experiments with mathematical rules and physical phenomena (floating bodies, reflection of light) in order to find out about developmental changes in intelligence. He has not been concerned with those biological and social phenomena that do not show reversibility or obey class-inclusion rules. That is, class-inclusion operations (understanding the relation between the whole and its parts) are sometimes not applicable to concepts describing living things or the behavior of people. The concept of "crowd" is more than merely the sum of the number of people in the crowd. Moreover, the child discovers that human emotions, unlike the physical concepts of quantity or area, are not always reversible nor do they display conservation. When a child makes his mother angry it is not always possible to perform an operation that transforms the parent back to the calm emotional state she displayed before she became angered.

Piaget and his colleagues are concerned primarily with the developmental sequences through which the child acquires the rules of formal logic, mathematics, and physical phenomena. For these cognitive skills, the notions of reversibility, conservation, constancy, and formal operations are important indeed.

But there may be some differences in the ways children learn to reason about social and biological phenomena. This is perhaps one reason why Guilford emphasizes the importance of the kinds of content the individual deals with in his thought sequences, and suggests that individuals differ in their problem-solving skill depending on the content of the problem.

Third, Piaget has been criticized by American psychologists for stating age norms for the various stages of development and implying that first-grade children are not yet capable of thinking in the formal sense (i.e., performing logical operations without the aid of concrete objects). These norms are only suggestive and do not mean that Piaget believes they

are valid for all children in all countries regardless of experience.

Finally, Piaget has not been interested in individual differences in modes of thinking among children of the same age, nor has he been concerned with the relations between the personality of the child and the way he thinks. These matters were discussed in Chapter 12.

These critical comments about Piaget's research are minor alongside the enormous contributions he has made. His work has been a major stimulant to other psychologists throughout the world, and he has given us many important insights into the nature of the child's thought.

REFERENCES AND ADDITIONAL READING

1. Ausubel, D. P. *Theory and problems of adolescent development*. New York: Grune and Stratton, 1954.
2. Baldwin, B. T. A measuring scale for physical growth and physiological age. *Yearb. nat. Soc. Stud. Educ.*, 1916, 15, (1), 11-23.
3. Bayley, N. Size and body build of adolescents in relation to rate of skeletal maturing. *Child Developm.*, 1943, 14, 51-89.
4. Bayley, N. Some increasing parent-child similarities during the growth of children. *J. educ. Psychol.*, 1954, 45, 1-24.
5. Bayley, N. Data on the growth of intelligence between 16 and 21 years as measured by the Wechsler-Bellevue Scale. *J. genet. Psychol.*, 1957, 90, 3-17.
6. Benedict, R. *Patterns of culture*. Boston: Houghton Mifflin, 1934.
7. Boas, F. Observations on the growth of children. *Science*, 1930, 72, 44-48.
8. Cobb, H. V. Role wishes and general wishes of children and adolescents. *Child Developm.*, 1954, 25, 161-171.
9. Cole, L. *Psychology of adolescence*. New York: Rinehart, 1948.
10. Conklin, E. S. *Principles of adolescent psychology*. New York: Holt, 1933.
11. Dennis, W. The adolescent. In L. Carmichael (Ed.), *Manual of child psychology*. New York: Wiley, 1946, 633-666.
12. Dimock, H. S. *Rediscovering the adolescent*. New York: Association Press, 1937.
13. Douvan, E. A., & Kaye, C. *Adolescent girls*. Ann Arbor, Survey Research Center, Univer. of Michigan, 1957.
14. Eichorn, D. H., & McKee, J. P. Physiological instability during adolescence. *Child Developm.*, 1958, 29, 255-268.
15. English, O. S., & Pearson, G. H. J. *Emotional problems of living*. New York: Norton, 1955.
16. Erikson, E. H. A healthy personality for every child: a fact finding report: a digest. Midcentury White House Conference on Children and Youth. Raleigh, N. C.: Health Publications Institute, 1951, 8-25.
17. Erikson, E. H. The problem of ego identity. *J. Amer. Psychoanal. Assoc.*, 1956, 4, 56-121.
18. Erikson, E. H. Identity and the life cycle. *Psychol. Issues*, 1959, 1, 1-165.
19. Espenschade, A. Motor performance in adolescence. *Monogr. soc. Res. Child Developm.*, 1940, 5, No. 1.

20. Farnham, M. L. *The adolescent*. New York: Harper, 1951.
21. Ford, C. S., & Beach, F. H. *Patterns of sexual behavior*. New York: Harper, 1951.
22. Frank, L. K. Adolescence as a period of transition. In *Adolescence*. 43rd. Yearb. nat. Soc. Stud. Educ., Part I. Chicago: Univer. of Chicago Press, 1944.
23. Frazier, A., & Lisonbee, L. K. Adolescent concerns with physique. *Sch. Rev.*, 1950, 58, 397-405.
24. Garn, S. M. Changes in areolar size during the steroid growth phase. *Child Developm.*, 1952, 23, 55-60.
25. Greulich, W. W. et al. A handbook of methods for the study of adolescent children. *Monogr. Soc. Res. Child Developm.*, 1938, 3, No. 2.
26. Greulich, W. W. et al. Somatic and endocrine studies of prepuberal and adolescent boys. *Monogr. Soc. Res. Child Developm.*, 1942, 7, No. 3.
27. Gruelich, W. W. The rationale of assessing the developmental status of children from roentgenograms of the hand and wrist. *Child Developm.*, 1950, 21, 33-44.
28. Guilford, J. P. The structure of intellect. *Psychol. Bull.*, 1956, 53, 267-293.
29. Horrocks, J. E. *The psychology of adolescence; behavior and development*. Boston: Houghton Mifflin, 1951.
30. Hurlock, E. B. *Adolescent development*. New York: McGraw-Hill, 1949.
31. Inhelder, B., & Piaget, J. *The growth of logical thinking*. New York: Basic Books, 1958.
32. Jersild, A. T. *In search of self*. New York: Teachers College, Columbia Univer., Bureau of Publications, 1952.
33. Jones, H. E. Adolescence in our society. In *The family in a democratic society*, Anniversary papers of the Community Service Society of New York. New York: Columbia Univer. Press, 1949, 70-82.
34. Jones, H. E. The environment and mental development. In L. Carmichael (Ed.), *Manual of child psychology*. New York: Wiley, 1954, 631-696.
35. Jones, M. C., & Bayley, N. Physical maturing among boys as related to behavior. *J. educ. Psychol.*, 1950, 41, 129-148.
36. Jones, M. C. The later careers of boys who were early or late maturing. *Child Developm.*, 1957, 28, 113-128.
37. Jones, M. C., & Mussen, P. H. Self conceptions, motivations, and interpersonal attitudes of early and late maturing girls. *Child Developm.*, 1958, 29, 491-501.
38. Kinsey, A. C., Pomeroy, W. B., Martin, C. E. *Sexual behavior in the human male*. Philadelphia: Saunders, 1948.
39. Kinsey, A. C., Pomeroy, W. B., Martin, C. E., & Gebhard, P. H. *Sexual behavior in the human female*. Philadelphia: Saunders, 1953.
40. Krogman, W. M. The physical growth of children. An appraisal of studies. 1950-1955. *Monogr. soc. Child Developm.*, 1955, 20, No. 1.
41. Lewin, K. Field theory and experiment in social psychology. *Amer. J. Sociol.*, 1939, 44, 868-897.
42. Lowrey, L. G. "Not quite" age. *Science News Letter*, 1952, 62, 356.
43. Mead, M. *From the south seas*. New York: Morrow, 1939.
44. Mead, M. *Male and female*. New York: Morrow, 1949.

45. Mills, C. A., & Ogle, C. Physiologic sterility of adolescence. *Human Biol.*, 1936, 8, 607-615.
46. Mussen, P. H., & Jones, M. C. Self conceptions, motivations, and interpersonal attitudes of late and early maturing boys. *Child Developm.*, 1957, 28, 243-256.
47. Mussen, P. H., & Jones, M. C. The behavior inferred motivations of late and early maturing boys. *Child Developm.*, 1958, 29, 61-67.
48. Nash, H. Assignment of gender to body regions. *J. genet. Psychol.*, 1958, 92, 113-115.
49. Olson, W. C., & Hughes, B. O. Growth of the child as a whole. In R. G. Barker, et al. (Eds.), *Child behavior and development*. New York: McGraw-Hill, 1943, 199-208.
50. Piaget, J. *Logic and Psychology*. New York: Basic Books, 1957.
51. Pilcher, J. D., & Tuchewicz, H. Premenstrual state in young girls. *Amer. J. dis. Child.*, 1943, 65, 296-304.
52. Ramsey, G. V. The sexual development of boys. *Amer. J. Psychol.*, 1943, 56, 217-233.
53. Ramsey, G. V. The sex information of younger boys. *Amer. J. Orthopsychiat.*, 1943, 13, 347-352.
54. Remmers, H. H., Drucker, A. J., & Christenson, H. T. Courtship conduct as viewed by high school youth. *Purdue Opin. Panel*, X, No. 2 (Report No. 27), 1950.
55. Schonfeld, W. A. Primary and secondary sexual characteristics: study of their development in males from birth through maturity, with biometric study of penis and testes. *Amer. J. dis. Child.*, 1943, 65, 535-549.
56. Shuttleworth, F. K. The physical and mental growth of girls and boys, age six to nineteen, in relation to age at maximum growth. *Monogr. Soc. Res. Child Developm.*, 1939, 4, No. 3.
57. Simmons, K., & Greulich, W. W. Menarcheal age and height, weight, and skeletal age of girls age 7 to 17 years. *J. Pediat.*, 1943, 22, 518-548.
58. Simmons, K. The Brush Foundation study of child growth and development. II. Physical growth and development. *Monogr. Soc. Res. Child Developm.*, 1944, 9, No. 1.
59. Sollenberger, R. T. Some relationships between the urinary excretion of male hormone by maturing boys and their expressed interests and attitudes. *J. Psychol.*, 1940, 9, 179-189.
60. Stone, C. P., & Barker, R. G. The attitudes and interests of premenarcheal and postmenarcheal girls. *J. genet. Psychol.*, 1939, 54, 27-71.
61. Stuart, H. C. Normal growth and development during adolescence. *New England J. Med.*, 1946, 234, 666-672, 693-700, 732-738.
62. Tanner, J. M. *Growth at adolescence*. Springfield, Ill.: C. C. Thomas, 1955.
63. Terman, L. M., & Miles, C. C. *Sex and personality*. New York: McGraw-Hill, 1936.
64. Watson, E. H., & Lowrey, G. H. *Growth and development of children*. (2nd ed.) Chicago: Year Book Publishers, 1954.
65. Wechsler, D. *The measurement and appraisal of adult intelligence*. (4th ed.) Baltimore: Williams and Wilkins, 1958.

14

PSYCHOLOGY OF THE ADOLESCENT

I. SEX, INDEPENDENCE, AND VOCATIONAL CHOICE

In addition to learning to deal with the dramatic physiological and anatomical changes that accompany puberty, the adolescent faces a variety of other problems. While some problems are related, to some extent, to his increased physical maturity, most are primarily dependent upon the environmental influences to which he is subjected. These major problem areas involve sexual behavior, establishing a balance of dependence and independence in relation to the family, vocational choice, crystallizing a system of values and a moral code, and establishing a sense of ego identity. We shall deal with the first three of these areas in this chapter.

SEXUAL BEHAVIOR IN THE ADOLESCENT

The increased desire for sexual gratification, influenced by hormonal and anatomical changes, is a major characteristic of adolescence. While sexual needs may be gratified directly in intercourse or masturbation, less direct gratification comes from romantic behavior—activities which have come to be known colloquially as “necking and petting.” The jokes, discussions, literature, fantasies, and dreams of the adolescent are heavily flavored with sexuality. There is no doubt that the growth of primary and secondary sex characteristics makes arousal of this motive more frequent and more intense. However, the social environment also strongly reinforces its importance. Movies, television, literature, and advertisements continually stress themes of love and romance.

In early adolescence there is an increased curiosity about sexual behavior. Boys and [less frequently] girls will read material—pornographic, literary, or scientific—describing sexual behavior and details of reproductive anatomy. They will look-up sexual words in dictionaries and, in some cases, engage in “peeping-tom” activities. Typically, the erotic play of

adolescents involves kissing (necking) and the touching and manipulation of the body (petting).

For some young people, necking and petting are a sort of game in which the sensations are the prize. For others, the purpose may be exploration to satisfy curiosities. For still others, it is a contest in which the boy seeks to induce his companion to go just a bit further than she intends. For many, however, it is a source of worry and guilt. For one thing, some who wish to remain chaste fear that, in the upsweep of emotions, their defenses will wilt. Many may have intentions not to partake in a disapproved pastime, but the good resolves fall by the wayside. Here, for instance, we find the girl who reads advice on how to handle "wolf tactics" without getting the boy angry, but remarked ruefully, "Each time I would find myself necking and when I got home would kick myself for my weakness" (46, 289).

While there is considerable variability among adolescents in their attitudes toward romantic behavior, and evidence that attitudes are changing, the attitude expressed by this girl is not uncommon among females in early adolescence.

Sexual Patterns in American Culture

In comparison with many other societies, the prevalent attitudes of the American culture toward sexual behavior among children and adolescents are restrictive—though, as we shall see, there are other cultures which are even more severe.

SEXUAL RESPONSES OF AMERICAN BOYS. Despite these restrictions, however, adolescent boys and girls do engage in a wide variety of sexual behaviors.⁹ Kissing, necking, and petting are extremely common. According to Kinsey (25), 95 percent of boys have had their first orgasm by the age of 15. Other authors give similar estimates. Of these orgasms, two-thirds were obtained through masturbation, one-eighth through heterosexual intercourse, and one-twentieth through homosexual contacts.

As adolescence progresses, the average boy's frequency of orgasm increases, reaching a lifetime peak of about 3.4 per week between 16 and 17 years of age (25). This frequency tends to persist with only slight

⁹ Much of the evidence in this matter has been obtained by Kinsey and his associates (25, 26). It is necessary, therefore, to point out that a number of legitimate criticisms of Kinsey's findings have been raised by various authors. In the main, these deal with (1) the representativeness of his sample of U.S. males and females, and (2) the dependability of the information volunteered by his subjects. It is our position, that while deficiencies in these respects probably produce some distortion of the data, these distortions are probably not marked. Therefore, in the absence of more dependable data from any other sources, we have decided to make use of his findings. It should also be noted with regard to the particular data cited here, that most other investigators in this field have reached similar conclusions on the basis of more limited samples.

diminution until the age of 30, after which there is a gradual tapering off (25). For most boys during the early adolescent period, the major source of orgasm is masturbation (about 60 percent of the total outlet). Almost all adolescent boys (over 90 percent) engage in masturbation. In the years from 16 to 20, masturbation is replaced by intercourse as a major source of orgasm, although masturbation is still common. During this period, masturbation accounts for about 38 percent, and intercourse for about 42 percent of total outlet. Premarital intercourse increases in frequency as adolescence progresses, so that by the late teens, nearly three-fourths of American males have had such experience (25).

As might be anticipated, the frequency of premarital intercourse in the boy is related to his social class. In general, lower-class adolescents have more such experiences than middle-class adolescents. Among college men, less than one-half have had intercourse during the adolescent years, while over three-quarters of the adolescents who did not finish grade school have had premarital coitus (20, 45). Other sources of sexual outlet during adolescence include (in order of frequency for ages 16 to 20) homosexual behavior, about 8 percent; nocturnal emissions, 7 percent; and petting to climax 2.5 percent (25).

SEXUAL RESPONSES OF GIRLS. The available evidence strongly suggests that, on the average, adolescent girls engage in considerably less sexual behavior than boys. According to Kinsey, petting, masturbation, and intercourse are all less frequent among teen-age girls. For example, by age 20, 71 percent of males and 40 percent of females have engaged in intercourse; by the same age, less than half as many females as males have masturbated.

Furthermore, fewer adolescent girls than boys have experienced orgasm. Even at age 20, only 53 percent of girls have achieved orgasm, and the incidence does not reach a lifetime maximum of around 90 percent until age 35 (26).

There are also marked sex differences in the source of first orgasms. Only 37 percent of girls who have achieved orgasm do so through masturbating as compared with approximately two-thirds of the boys. On the other hand, while premarital petting to climax is an insignificant source of first orgasm in boys, it accounts for 18 percent of such orgasms in girls. Again, while marital intercourse is a minor source of first orgasms in boys, it accounts for 30 percent of such orgasms in girls. Other sources of sexual outlet account for only a minor proportion of girls' initial orgasms (26).

Whereas frequency of orgasm in boys increases sharply in adolescence,

reaching a peak at 16 to 17 years (3.3 per week), the maximum mean frequency for girls (1.8 per week) does not occur until the period of 26 to 30 years (25, 26). Although nearly 100 percent of boys have reached orgasm by the time of marriage (through a variety of methods), *only 30 percent* of females have done so.

As might be anticipated from their overt behavior, girls seem to have more restrictive attitudes toward sexual behavior than boys in our society, for more girls than boys believe that adolescent sexual behavior is deserving of social condemnation (3). Among middle-class adolescents, boys are much more likely than girls to acknowledge on a questionnaire that they have experienced sexual arousal and a desire for romantic activity (30). Douvan and Kaye conducted a comprehensive study of a large group of adolescents which suggests that adolescent girls tend to reject any girl who openly displays sexual behavior (13).

Since this chapter contains many references to results of the aforementioned study, it will be described briefly here. A group of 1,925 girls between 11 and 18 years of age were interviewed. These girls came from all parts of the United States and were representative of all social classes. Each girl was individually interviewed from 30 minutes to 2 hours and was asked a variety of questions that dealt with dating, interests, educational plans, personal goals, sources of anxiety, clubs, and work experience. Typical questions included: "What is the biggest disappointment you have ever had? What do you think about going steady? What kind of person would you like to marry?"

To the question, "Are there any girls you wouldn't go around with? Why?", excessive interest in boys or a reputation for sexual promiscuity was the most frequently given reason for peer rejection (33 percent of the girls gave this reason). Only 2 percent of the girls felt that "fast" girls were popular with boys. Thus, the average adolescent girl in the United States regards open display of sexual behavior or desire for sexual experience as an undesirable characteristic, and girls who behave in this manner are apt to be rejected by other girls.

SEX DIFFERENCES. There are a number of factors which bear important relationships to adolescent sexual behavior. Obviously from our discussion thus far, one of these is sex membership. Over-all sexual activity is far more abundant in adolescent males than in females. The question of why this should be so is clearly an important one. The answers, however, are far from certain. Several theories have, however, been advanced—some primarily physiological in nature, others primarily cultural.

One possibility is that females are less likely than males to discover

sexual responses spontaneously, because the girl's sexual organs are less prominent. Some authors have advanced such an argument to account partially for the greater incidence of masturbation among adolescent males than among females. As Mead says, "The human female shows a lesser capacity for sexual stimulation, and it might be argued that the lesser frequency of masturbation among young females that is reported in our own society, and characteristic of all South Sea societies I have studied is merely a structural matter. The female child's genitals are less exposed, subject to less maternal manipulation and self-manipulation. If masturbation is not socially recognized and taught either by parents to children or by older children to younger, it may escape the spontaneous learning of the female child" (34).

It is also possible that there may be basic physiological differences in sexual motivation among male and female adolescents as some authors have suggested (26). However, it seems probable to us that the lesser sexual responsiveness of female adolescents is attributable in large measure to our more restrictive social attitudes toward sexual gratification for girls.

SOCIOECONOMIC DIFFERENCES. In addition to differences between adolescent males and females in sexual responsiveness, there are also differences in responsiveness related to social-class membership.

It is interesting to note that the effects of social-class membership apparently are considerably less for females than for males. In their report of female sex behavior, Kinsey and his associates (26) point out: "There seems to have been no correlation at all between occupational classes of the parental homes in which the females in the sample have been raised and the incidences and frequencies of their total (sexual) outlet." There also appeared to be little relationship between social-class background of females, and incidence or frequency of most types of sexual response.

In contrast to the rather negligible influences of social-class membership upon sexual behavior in females, religious affiliations seem to play a strong role, both during adolescence and in later life. Kinsey found regularly that inactive members of the Protestant, Jewish, and Catholic faiths were consistently more sexually active both before and after marriage than were moderately active church members. Devout members, in turn, were consistently least active sexually. Kinsey comments that: "Among all the cultural and biological factors which might affect their sexual activity, and which in actuality had considerably affected the sexual activity of the male in the sample, only the religious backgrounds

of the unmarried (and married) females had had any material relationship to their acceptance of either solitary or socio-sexual contacts" (26).

Among boys, on the other hand, implicit standards of acceptable sexual behavior vary from one social-class level to another. In one study (6) 317 middle- and working-class preadolescent English boys filled out a questionnaire concerning their attitude toward heterosexual behavior. The lower-class boys admitted to much greater interest in girls and heterosexual behavior than the middle-class boys. Among upper-middle-class boys, Kinsey has reported that masturbation and petting to climax, while not specifically approved, are generally viewed as more acceptable than actual intercourse. Conversely, there is a general tendency among lower-class individuals to consider these practices abnormal (25). As a result, masturbation and petting are more common among the higher social-class groups than among the lower.

On the other hand, actual intercourse, which is more anxiety-arousing among upper- and middle-class boys, is considered entirely normal by those of lower status: "They have nothing like the strong (higher-level) tabu against premarital intercourse, and, on the contrary, accept it as natural and inevitable and as a desirable thing. Lower-level tabus are more often turned against an avoidance of intercourse and against any substitution for simple and direct coitus" (25). As a reflection of these disparate attitudes, we find that by age 15 nearly half of lower-class boys but only 10 percent of higher-status boys have engaged in intercourse (25).

The reasons for these social-class differences are multiple and complex. They are not simply the result, for example, of greater parental punishment for sexuality by middle-class parents. It is likely that these differences are due, in part, to the identification models available to the child, and the degree to which the child adopts traditional sex-role values. We have suggested on several occasions (cf. Chapters 9 and 12) that the child attempts to model himself after the adults in his immediate life space who are viewed as powerful, competent, and prestigious. It is likely that the lower-class child is more frequently exposed to adults (relatives, older friends, older brothers) who openly boast about sexual conquests and promiscuous relations. Thus, the lower-class adolescent who is attempting to identify with these adult models will be motivated to have sexual experiences in order to strengthen his identification with them.

Moreover, lower-class boys are more concerned with the cluster of traits that define masculinity. As noted in Chapter 11, working-class

mothers, in contrast to middle-class ones, encourage the adoption of traditional sex-typed behaviors in their sons (27). The traditional characteristics of masculinity in our culture include, among other things, strength, courage, aggressivity, sexual potency, and conquests. Casual study of the behavior of male heroes in television, the movies, and in popular novels supports the validity of this conclusion. We are suggesting, therefore, that the greater frequency of sexual episodes in lower-, in contrast to middle-, class adolescents is due, in part, to the fact that lower-class boys more often view sexual experience as an index of masculinity. This conclusion points up an important fact about sexual behavior; namely, it is often used as a means of proving maturity. Initiation of sexual behavior sometimes is less related to the desire for sexual gratification per se, than to the desire to establish one's adult status, as defined by the adolescent's immediate cultural milieu.

PARENTAL ATTITUDES TOWARD SEXUALITY

As Frank (18) points out, "Until recently, save in some exceptional families, it has been customary to regard matters involving sex as more or less shameful. It was considered depraved and perverse for children to be curious about biological processes and anatomical differences, adults were confirmed in these attitudes by the church and other social influences."

Viewed in this light, it is not simply fortuitous that in the past children have obtained a greater part of their information about sex largely from their peers. One investigator (36), for example, studied the sources of information on various sexual topics in a group of 291 adolescent boys, in a large middle-western city in the early 1940s.

He found that for all sexual topics studied, the primary source of information was the male peer group. The mother was responsible for first knowledge of the origin of babies in 27.5 percent of cases, and of menstruation in 20.2 percent. First knowledge on other topics did not come from either parent in more than 5 percent of the cases studied.

Another study (5) of both boys and girls, conducted during the middle 1930s, yielded similar results. Moreover, it showed that more girls than boys, and more white than Negro adolescents, received sex information from their parents. The greater frequency of parental instruction among girls probably has several origins. Girls are likely to have closer emotional relationships with their mothers than boys with their fathers; also boys talk more freely among themselves than do girls. In addition, it is pos-

sible that parents may feel that a girl should be given sex information to protect her from victimization by sexually aggressive males. In the case of the boy, they may feel that he knows about sex, and there is no need to discuss the topic.

In recent years, parents may have begun to take a more active role in sex instruction. In at least one recent study of high-school youth (37), parents, rather than friends, were the most frequently mentioned source of sex instruction for the higher socioeconomic group. If this actually is a trend toward more instruction by parents, it would suggest that parents are developing a less guilty attitude toward sex. It seems clear that if adolescents are to achieve a healthy adjustment to the sexual changes at puberty, they need specific sexual information from their parents and they need to learn healthy attitudes.

While the adolescent may need some specific sexual information, he is more likely to need to learn about the role sex plays in the individual's general adjustment. As Frank says: "Teaching about procreation is the last thing they are really concerned about. They want to know, not about babies, but what you do about sex, what you can give and receive from the other, what love means!" (18). In other words, adolescents want to learn how to fit sex meaningfully and without anxiety into their lives.

CULTURAL DIFFERENCES IN SEXUAL ATTITUDES AND BEHAVIOR

In the light of the role that learning plays in determining the sexual response patterns which are adopted as ways of gratifying sexual drives, it is not surprising to find that sexual behavior during adolescence varies markedly from one culture to another. There are important differences between cultures, not only in the amount and type of sexual behavior that is socially accepted, but also in the consistency of the society's sexual standards as development proceeds. A culture may be restrictive with regard to sexual activity throughout childhood, adolescence, and even to some extent in adulthood. It may be fairly permissive at all ages. Or it may be highly restrictive during childhood and adolescence, and then suddenly become much more permissive about, and, of course, in many cases demand, sexual activity in adulthood.

Thus, Dakota Indians do not expect children to be interested in sexual behavior until they have reached puberty and are capable of reproduction. Among the Melanesian cultures of New Guinea, on the other hand, sex play among preadolescent children is taken lightly.

Moreover, the culture's attitude toward sexuality will depend, in part,

on whether it views sex primarily as a source of pleasure, or as reserved for reproduction. The Marquesans stress the pleasure value of sex and are permissive of sexual behavior in children. The Zuni of New Mexico are less encouraging of sex among preadolescents because children of this age are not capable of reproduction (8).

Our own society generally views sex behavior as appropriate only among marriage partners and, therefore, discourages it among children and adolescents. From the standpoint of learning theory, we spend a great many years teaching the individual to inhibit sexual responses in order to prepare him for a time when he will be expected to make these responses. We teach him to respond to sex with anxiety when he is a child, and then demand that he not respond anxiously after he is married. "The man or woman who learned during childhood and adolescence that it was 'wrong' to examine or stimulate his or her own genitals, that it was 'even worse' to have any contact with those of another person, and, particularly, that attempts at heterosexual relations were immoral, is expected to reverse completely at least some of these attitudes on the wedding night or shortly thereafter. This expectation is difficult to fulfill. If the initial lessons have been well learned, the unlearning is bound to take a long time and may never be completed" (17, 195).

It would be a mistake to assume that such contradictory cultural expectations are confined to our own society. For example, "in sexual matters the Manus boy is in much the same position as our middle-class adolescent male" (3). While the male physiological sex drive is recognized as natural in this New Guinea tribe, sexual behavior is strongly tabooed until marriage. Apparently such release of tension as does occur is achieved primarily through covert homosexual activity and through solitary masturbation "surrounded by shame" (3). The Manus girl's position is highly reminiscent of that of a female of the Victorian era. She is taught that sex is not gratifying to women, and, in fact, that it is "loathsome, shameful, and repugnant" (3). The consequent difficulties in adjusting to intercourse after marriage can easily be imagined.

In some nonliterate societies, the inconsistencies of social attitudes toward sex are even more extreme than in our own. For example, among the Ashanti, sexual intercourse with a girl who has not undergone the puberty ceremony is considered so harmful to the community that the offense is punishable by death for both parties (17).

In contrast, there are many cultures, such as the Hopi, the Siriono, and the Alorese, which are highly tolerant of sexual behavior in childhood. In most cases, this tolerance persists into adolescence and adult-

hood. Under such conditions, sex play increases in both sexes, beginning with casual masturbation and extending, as the child grows older, to handling the genitals of the same and opposite sex, and to intercourse (17).

Among the Ila-speaking people of Africa, "childhood is regarded as a time of preparation for adult life and mature sexual functions. At harvest time, each girl is given a house to which she takes a boy of her choice, and there they play as man and wife. It is reported that there are no virgins among these people after the age of 10" (17). The Lepcha of India "believe that girls will not mature without benefit of sexual intercourse. Early sex play among boys and girls characteristically involves many forms of mutual masturbation and usually ends with attempted copulation. By the time they are 11 or 12 years old, most girls regularly engage in full intercourse" (17).

Obviously, adolescent sexual attitudes and practices vary widely from one culture to another. These attitudes and practices, in turn, will have a marked influence on the ease with which the adolescent is able to adjust to adult heterosexuality.

Sexual Attitudes in Relation to the Total Culture

The type of sexual training an individual receives during childhood and adolescence helps to determine whether he will show great or little interest in sexual behavior, and whether he will tend to view sex as a pleasant and matter of fact affair; as sinful and dangerous; extremely exciting; or as a matter of aggressive conquest, or even rape. Sex-training practices in turn are intimately related to broad cultural attitudes. Among the Zuni, for example, the relations—sexual and otherwise—between husband and wife tend to be pleasant, cooperative, and untainted by feelings of guilt. And this is true not simply because of cultural attitudes toward sex, but because of cultural attitudes toward living generally. The sense of sin, for example, is not absent only with regard to sexual behavior. As Benedict says, "It is unfamiliar to them not only in sex but in any experience" (7). Sexual intercourse is a cooperative, rather than a competitive matter to the Zunis, "not simply because of specific sex training, but because cooperation is an integral part of the whole Zuni way of life" (7).

In other societies, such as the Mundugumor, aggression and competition play an important part in the individual's sexual relations largely because they pervade the whole Mundugumor way of life.

The data on cultural variations in sexual behavior presented in the preceding sections provide impressive evidence of the modifiability of human sexual behavior. These data also demonstrate the tremendously

important role of cultural influences in determining both the frequency and direction of an individual's sexual responses and the degree of anxiety associated with them.

RELATIONS WITH OPPOSITE-SEX PEERS

The ease with which heterosexual adjustments are made during adolescence will be in large measure a function of cultural influences. In some primitive societies, such as the Samoans or the Alorese, heterosexual adjustment proceeds naturally and easily, with few sudden changes. In other societies, such as the Manus, the culture seems almost to conspire to make heterosexual adjustment as difficult as possible. While our own culture's attitudes are somewhat more permissive than those of the Manus, it is still true that one of the most profound adjustments which the adolescent must make in our society involves his relationship with opposite-sexed peers. As we saw earlier, during preadolescence most boys and girls in our society not only confine their social activities primarily to members of their own sex, but manifest in addition a marked aversion or antagonism toward members of the opposite sex.

Between the age of 12 and adulthood, these same children are expected to learn to relate socially and with ease to members of the opposite sex. They are expected to cope with problems of what to do about increases in sex drive—whether or not to engage in masturbation, necking, petting, or intercourse; and if so, to what extent and at what age. They are supposed to switch to obtaining a greater part of their satisfactions in interpersonal relations with one member of the opposite sex, rather than as in the past with a primarily same-sexed gang. Furthermore, they are expected to develop strong interests in becoming marriage partners, parents, and managers of independent households. Lastly, they are expected after marriage to be capable of enjoying sexual activity with their spouses, and only with their spouses.

Factors Affecting Attitudes Toward Opposite-Sex Peers

In view of the extent of these demands, it is not surprising that some adolescents have trouble making satisfactory heterosexual adjustments. The ease with which the child will be able to progress from antagonism to a positive interest in the opposite sex will depend largely on his previous parent-child relationships. The attitudes which the child develops in his early relations with his mother and father may persist into adolescence and may be generalized to other males and females. For example, as a child a girl may have learned to expect love and admiration from her father. She may have been rewarded by her mother for exhibiting

feminine traits. Such a girl will tend to grow up expecting that relations with males in general can also lead to love and admiration. She will not be resentful of playing a feminine role in relation to male contemporaries during adolescence and adulthood.

On the other hand, the girl whose father has rejected her is likely, also on the basis of generalization, to anticipate rejection from all men. Similarly, the boy whose mother has exploited him or dominated him is likely to anticipate exploitation and domination from all women.

The above, of course, are simply examples of the ways in which attitudes developed in relation to parents are likely to be generalized to same- or opposite-sex contemporaries in adolescence, with either a facilitating or damaging effect upon the child's chances for reaching an adequate heterosexual adjustment.

Antagonism toward the opposite sex, stemming from the differential treatment of boys and girls, is another factor which may handicap the adolescent in his heterosexual relationships. The adolescent girl who finds boys able to do things she is unable to do, or receiving rewards she does not receive, may become resentful toward them.

Resentment toward the opposite sex is probably more prevalent among girls than among boys, since boys seem to have a preferred status in our society which is tacitly acknowledged by both sexes. In one study, it was found that while boys seldom, if ever, wished they were girls, girls were not infrequently envious of and wished they were boys (47). Factors which may further magnify this sex antagonism and prolong it, possibly permanently, include learned fears of sexuality, shyness, fear of social relationships, and, of course, poor parental identification patterns.

The longitudinal study of the Fels population indicated that the pattern of sexual behavior displayed by boys during early adolescence was indicative of amount and pattern of sexual behavior in adulthood. Boys who did not date during the early high-school years were less likely to have established a gratifying heterosexual relationship by the mid-twenties than boys who had been frequent daters. Moreover, the boys who adopted traditional masculine interests (sports, mechanics, competitive games) engaged in more erotic activity in late adolescence and adulthood than the boys whose activities and interests were not traditionally masculine (e.g., music, reading, art) (24).

Boy-Girl Relationships

As they mature, boys and girls begin to pay more attention to one another. Earlier sex antagonisms and crushes begin to wane, and frankly

heterosexual interests begin to predominate. Topics dealing with heterosexual relationships (e.g., dates, marriage, ideal person of the opposite sex, sexual relations, dancing, and love) occupy what may seem to adults like an inordinate percentage of the conversational repertoire of many high-school and college students.

In the earlier years of adolescence, topics of major concern (particularly to middle-class youngsters) include: whether to date alone or to double date, and whether to permit kissing on dates; what clothes to wear; what conversational topics to pursue; even how to have conversation at all with those strange beings of the opposite sex (10).

The study of 1,925 adolescent girls, described earlier, indicated the girls' strong preoccupation with heterosexual relationships. To the question "What is the most important thing that could happen to you?" 14 percent said, "Fall in love or getting married," and 37 percent said that "popularity with boys was the one thing girls worried most about" (13).

In later adolescence, more urgent questions of sex mores inject themselves. An extensive study of college fraternity members, sorority members, and dormitory women, revealed that between 21 and 30 percent of all topics discussed in "bull sessions" dealt with some aspect of sex (40). Using an anonymous questionnaire technique with adolescent young people's groups, another investigator (10) found that among the important topics discussed at this age are moral questions relating to petting, premarital intercourse, the nature of true love, birth control, the wisdom of marrying someone of a different cultural, religious, or racial background.

In view of the fact that there is little agreement among adults in our culture as to what constitutes permissible adolescent heterosexual behavior, one would expect individual adolescents to vary widely in their sexual practices. A study of the current sex behavior of 582 college students (14) indicated that, among boys, approximately 4 percent were not dating at all. Of the remainder, about 4 percent engaged in no physical contact or only in holding hands; 23 percent stopped at kissing and hugging; 32 percent engaged in "heavy petting"; 37 percent went as far as sexual intercourse. Among the girls, 1 percent were not dating currently. Three percent went no further than hand holding; about 46 percent stopped at hugging and kissing, 40 percent engaged in "heavy petting"; and 10 percent went as far as sexual intercourse.

College students, of course, fall primarily in the middle-class. Comparable figures for lower-class youths are, unfortunately, not so available, although Kinsey's data suggest that lower-class males engage in actual

intercourse more frequently than their middle-class peers, and in other forms of heterosexual stimulation less frequently.

Bases for Heterosexual Attraction and Rejection

One of the most painful experiences for an adolescent is to be rejected by members of the opposite sex. What characteristics do boys and girls of this age admire in each other? One investigator (42) asked eleventh-grade high-school boys and girls to name the characteristics they considered desirable in opposite-sexed peers. Her findings, listed in order of importance to the students, are given in Table 8. As may be seen,

TABLE 8. Desired Qualities of Opposite-Sexed Peers

What eleventh-grade high-school girls want in boys	What eleventh-grade high-school boys want in girls
1. Personality.	1. Personality.
2. One who gets on well with all kinds of people including parents.	2. Nice-looking.
3. Good physique.	3. One who is considerate.
4. Good conversation (variety—both small talk and serious).	4. Good conversation (variety—both small talk and serious).
5. Good listener.	5. Good listener.
6. Intelligent.	6. Both feminine and a pal.
7. Not conceited.	7. Can do many things, such as Swimming, hiking, skating.
8. Good sense of humor (fun but not silly).	8. Intelligent.
9. Looks neat and clean.	9. Good sense of humor.
10. Polite.	10. The kind that makes one want to be polite.
11. Good dancer.	11. Not too much make-up.

SOURCE: From Taylor (42). With permission of Appleton-Century-Crofts, Inc.

boys place more emphasis on physical appearance than girls. Girls place more emphasis on ability to get along with people.

It is also interesting to note that intelligence as a desirable opposite-sex characteristic is rated almost as high by boys as by girls (42). Several studies of college females (28, 44) indicate that, correctly or incorrectly, many girls feel that they should occasionally pretend to be inferior to men, even though they might feel equal (or superior) to them. Thus, in one study, to the question, "In general do you have any hesitation about revealing your equality or superiority to men in intellectual, artistic, or athletic competence?" 35 percent of girls replied that they had at least some hesitation. Over half of the girls reported advice, primarily from

mothers and fathers, to the effect that they should act more "feminine" (44).

Apparently many college girls tend to overemphasize the importance of "playing dumb," for actually the majority of college males say that they want mates who are at least their equal in intelligence and education (38).

Preferences for Marriage Partners

In a study of courtship conduct as viewed by high-school youths, boys and girls displayed preferences for somewhat similar characteristics in prospective mates (37). Among the characteristics emphasized were physical and mental fitness, desire for a normal family with children, dependability and trustworthiness, compatible interests, good personal appearance and manner, pleasant disposition, and a sense of humor. Many of the boys stressed the importance of their future mates' knowing how to cook and keep house, and a majority of the girls spontaneously expressed concern with their future mates' chances of making money and getting ahead. The boys placed more emphasis on physical attractiveness, whereas girls placed greater stress on their parents' approval of their choice and on the traits of dependability and considerateness.

In Douvan and Kaye's study (13), the adolescent girls were asked, "Tell me a little about the kind of person you'd like to marry." Affection and consideration, vocational success, enjoyment of children, and popularity were the most frequently mentioned traits. The traits least frequently mentioned were helping with the housework, acceptable family background, and neatness.

In another study (38), the majority of high-school girls said that they would prefer marriage partners who were one to two years older than themselves. Boys seemed to agree, for they preferred their future wives to be one or two years younger than themselves.

In summary, one of the major problems confronting the adolescent is finding an acceptable resolution between his urges for sexual gratification and opposing feelings of anxiety and fear. In our culture, it is impossible to grow up without some degree of anxiety over sexuality. A common source of tension among college girls is an intense conflict over the desire for sexual experience. Too often, the girl is unaware of and underestimates the intensity of her sexual anxiety. As a result she may engage in petting and intercourse, only to experience serious feelings of remorse and guilt which, in some cases, can lead to depression and apathy.

Sexuality is often used, not as a natural expression of love, but as a

means of living up to peer expectations or of proving that one is "grown up." Since the middle-classes in Western culture stress that sexual behavior should only be practiced in a context of love, these sexual ventures can lead to serious guilt and self-deprecatory feelings. Even though the individual may be unaware of these feelings, they can subsequently lead to a variety of psychological symptoms.

DEPENDENCE AND INDEPENDENCE

A second major conflict of the adolescent involves the establishment of independence from his parents. This is not a simple matter, for opposing motivations for independence and for continued dependence are both strong, thus producing conflict and vacillating behavior.

Cultural Pressures for Independence

Parents, teachers, relatives, and other authority figures generally encourage a certain amount of independent behavior during the preadolescent years. They show increasing disapproval if the child consistently relies on adults for advice and support. Therefore, the desire to please adults may motivate the adolescent to inhibit the dependent behaviors typical of childhood.

However, our society also imposes certain obstacles to complete independence from the family. Preparation for a vocation may require prolonged training, frequently involving college and sometimes postgraduate education. The adolescent is often forced, therefore, to remain financially dependent upon his parents for a long period of time. Furthermore, since marriage does not usually occur in early adolescence, the individual generally continues to live with his parents. This situation is, by definition, a dependent one since food and shelter are usually provided by the family. Consequently, the goal of independence fostered by society is blocked by mores and rules that are inconsistent with complete independence. This inconsistency is a source of anxiety and conflict.

Identification with Adult Independence

Social pressures for independence are not the only determinants of the adolescent's motivation to inhibit dependence. Intrapsychic forces, only indirectly related to social reward and punishment, facilitate the development of this motive. During the years 3 to 6, the child's imitations of adult behavior necessarily had a gamelike quality because of the vast

differences between the child and his parents. The adolescent, however, is seriously trying to be an adult. He has the height, weight, and many of the skills of an adult. In order to achieve adult status, he must acquire the salient psychological characteristics of an adult. Independence and autonomy are clearly two of the most important of these characteristics. The adult decides what to wear, what to eat, when to sleep, and what to buy. As a result, the adolescent strives to make these independent behaviors part of his own repertoire, in the hope that this will insure his status as an adult. In brief, the strong motivation for independent behavior in the adolescent stems from at least two sources: social pressures and identification with the independence of adult role-models.

Establishment of Independence in Other Cultures

In a number of primitive societies the task of establishing independence may be less difficult than it is in our culture. In some societies, the child may be prepared more gradually for independence, being given increasing freedom from early childhood on, with no discernible spurt at puberty. In others, true independence from the parents may be postponed until long after puberty, and may occur slowly. Among the Arapesh people of New Guinea, for example, the adolescent takes over much of the responsibility for supporting and managing the household, but there are few marked changes in basic family relationships at this time. The Arapesh girl does not suddenly leave home during adolescence to go to live in a strange household with strange people, in order to undergo the joint uncertainties of married life, sex, and childbearing. In this culture, the girl has been chosen as a wife by her husband's parents many years prior to the consummation of the marriage, and she has been allowed during the interim to wander confidently back and forth between her own home and her future husband's. By the time her marriage is consummated she has come to think of her parents-in-law as an additional mother and father. She has known her husband almost as an older brother, whose responsibility it has been to look after her, to feed her, to help her grow up. Neither the girl nor the boy in Arapesh culture is rushed into consummation of their marriage. According to Mead:

After the first menstruation ceremony, the betrothed girl's life goes on as before. The parents-in-law will continue their slight, unobtrusive chaperonage. She still sleeps in their hut, and if one of the daughters of the house is at home, the young sisters-in-law may sleep together. Just below the surface of articulate recognition by the community is the knowledge that sometime soon now, in a few months, in a year, this marriage will be consummated. Mean-

while, the girl makes herself a lovely grass skirt; with young wives a little older than she is, she spends many hours plaiting the sago-shoot shreds that she has wheedled some old woman into dyeing a beautiful red. She keeps her skin bathed and shining, and wears her necklace of opossum-teeth or dog's teeth every day. No one is fairer or gayer in the whole of Arapesh than these young girls waiting, in lovely attire, for life at last to catch up with them. No definite date is set; as the months pass, the parents relax their chaperonage more and more. The girl is fully mature now. The boy is tall and well developed. Some day the two, who are now allowed to go about alone, together in the bush, will consummate their marriage, without haste, without a due date to hurry them with its inevitableness, with no one to know or to comment, in response to a situation in which they have lived comfortably for years in the knowledge that they belong to each other (33, 97).

As time goes on, the Arapesh girl takes on increasing responsibility in her new home. However, many of the problems which occur frequently in American marriages do not exist in Arapesh culture. There is none of the atmosphere of confusion, of sudden complete separation from parents, of moving into a new house and beginning a separate existence with a relatively unknown male, and of bearing and caring for her babies by herself.

Similarly, the independence problems faced by the Arapesh boy are likely to be less severe than those faced by American boys. Once the Arapesh youth has passed through the initiation ceremony following pubescence, he assumes added responsibility. "From one who has been grown by the daily carefulness and hard work of others, he now passes into the class of those who care for others' growth" (33). He takes on new responsibilities toward those "who after years of devotion to his growth are now growing old themselves, and toward his brothers and sisters, and his young betrothed wife" (33). But he does not need to go out into a new community on his own, somehow obtain an unfamiliar job, and complete his emotional independence from his parents. He continues, but with new responsibility, to till the family's garden. He still sees his parents daily, and when at last he consummates his marriage, it is with a girl he has known, whom he has cared for, and to whom he has had to adjust his personality over a long period of time.

In contrast to the Arapesh youth, the Mundugumor adolescent finds the problem of orderly transition from dependence on the parents to the setting up of an independent household infinitely more difficult. This increased difficulty is at least partially attributable to the fact that "Mundugumor social organization is based on a theory of a natural hostility between all members of the same sex . . ." (33). Fathers and sons

view each other almost as natural enemies, as do mothers and daughters. Moreover, relations between husband and wife are notably poor. Fathers band together with daughters, while mothers band together with sons. Between the two subfamily groups rivalry and distrust are characteristic.

Consequently, it seems likely that the Mundugumor boy approaches adolescence close psychologically only to his mother, hostile toward his father, and distrustful of girls his own age. The girl, on the other hand, has strong ties to her father, resentment toward her mother, and distrust of her male contemporaries. Furthermore, the girl's problem is magnified because of the jealous father's attempts to keep his hold on her as long as possible (33).

There seems little doubt that Mundugumor children, who grow up in a culture that contains so much hostility and so little tenderness, early develop a kind of hardy independence that prepares them somewhat for the demands they must face in adolescence. But this advantage is virtually negated by the fact that the independence demanded of the Mundugumor adolescent is so much more extreme than in most cultures. The prospect of establishing independence is unpleasant, and in many ways threatening. In fact its only really attractive aspects seems to be escape from the hostility of the same-sexed parent.

Problems of Independence in American Culture

In setting up his own household the American adolescent certainly encounters more stress than the Arapesh youth, though he is spared much of the violence of the Mundugumor's independence struggles.

In contrast to the Arapesh adolescent and those in many other primitive cultures (48), the American adolescent is expected, in the years between puberty and adulthood, to pass from a state of relatively great dependence on his family to one of considerable independence. Middle-class Americans begin independence training somewhat earlier than most primitive societies (48). However, they generally complete this training relatively late, requiring a high degree of continued dependence into adolescence (48).

Not until the adolescent is nearing adulthood do the demands for true independence become really strong. In other words, the American adolescent is asked to assume real independence suddenly after having developed strongly rewarded dependence responses over a long period of time. As a consequence of strong societal demands for independence, in the face of incompatible and well-established dependence responses, the adolescent is likely to be in conflict. And the fact that this conflict is

timed to coincide with so many other demands related to puberty and adolescence only increases its stressfulness.

Moreover, no clear pattern of transition from dependence to independence is spelled out for the adolescent by our society as a whole. There is little agreement as to the forms this greater independence should be allowed to take. We have no formalized procedures in our culture comparable to the puberty ceremonies or *rites de passage* of many primitive cultures which can serve as guides both to the parents and to the adolescent as to when and how independence should be granted and assumed.

In our society, children do not achieve adult status through the succession of rituals and observances . . . that mark development in many societies. In some contemporary primitive societies certain culturally valued individual accomplishments are recognized with feasts and ceremonies, and new, more clearly adult privileges and responsibilities are thereafter accorded the boy or girl. In other words, the beginning and the end of various culturally described stages of development are observed with similar ceremonies and rituals, followed for the individual by a new status. In this way, individuals or groups of individuals are inducted into their adult roles (43, 237).

About all our culture has in the way of institutionalized forms of recognizing the adolescent's increasing independence are a number of laws, often internally inconsistent and varying a great deal in their content from one area of our culture to another. For example, there are sizable variations from state to state in the age at which the child becomes legally responsible for his own actions, and at which the parent is no longer held responsible. There are differences, too, in the ages at which the adolescent is considered competent to drive a car, to marry, to own property, to carry firearms, to drink alcoholic beverages, and to purchase tobacco.

Thus the adolescent who must face the problems of transition from childish dependency to adult independency is likely to be impressed, not with the solidarity of the expectations of the adults in this regard, but with their divisiveness. In one instance, or with one set of people, he is likely to find that independent responses are rewarded. In other instances, or with other people, he may just as easily find that they are punished. The church, the school, the members of the various social classes, even the adolescent's own parents may have different notions as to the time when adult protection and guidance should be relinquished in favor of greater individual responsibility.

The adolescent is likely to observe that one of his peers is allowed by his parents to decide how to spend his money, to use the family car, to date, to choose his own vocation, to do part-time work, to choose his own

companions, to go off on trips by himself or with his friends. Another adolescent, even of the same age and social group, may be allowed to do none of these things.

Moreover, the adolescent finds numerous inconsistencies in the ways in which people react to him as an individual. The young high-school student's employer usually expects him to be independent and responsible more often than do his parents. The same thing usually holds true for male peers and his sweetheart. It is also true of the law in most instances.

A mother and father may have differing independence expectations with regard to their child. In addition, either or both parents may possess mixed feelings over their child's growing independence. These mixed feelings are likely to be reflected in inconsistent patterns of parental behavior—as, for example, demanding independence and at the same time punishing it when it occurs.

The adolescent himself is likely to be uncertain and confused about the problem of achieving independence. He may desire to be a free agent, but he may just as truly want the security and lack of responsibility that are associated with continuing dependence. As a result, he may suffer personal conflict over independence needs. When all the above environmental inconsistencies with regard to independency-dependency expectations are added to the adolescent's own uncertainties, it is not surprising to find that the adolescent's path to independence should often be a stormy one both for the adolescent himself and for his parents.

SPECIFIC PARENT-CHILD CONFLICTS. Not surprisingly, in light of the above discussion, parent-child conflicts during adolescence tend to fall into two main categories: (1) issues involving greater adolescent demands for independence than the parents are willing to grant; (2) issues involving more dependent, or childish, behavior on the part of the adolescent than the parents feel able to tolerate (9, 19, 32). In the first category would be included arguments over such topics as: time the child gets in at night, use of the family car, and freedom to choose own friends among boys and girls (19, 32). In the second category would fall parental objections to: noisiness and untidiness, teasing of siblings, silliness, and shirking of home duties (19, 32).

INDEPENDENCE CONFLICTS AND PREVIOUS PARENT-CHILD RELATIONSHIPS. The severity of the adolescent's conflicts over independence-dependence, and the ease with which they are resolved in the direction of greater independence will depend to a large extent on previous parent-child relationships.

For example, we have already seen that the child whose parents have

been overly dominant tends to become overly dependent and submissive to authority, since these are the types of responses which such parents reward. By adolescence, these responses are likely to have acquired such great habit strength that the individual will have great difficulty in eliminating them and substituting the more independent responses which the society demands.

According to one author, "if the dominated child is at the same time wanted or accepted, and if the domination is steady, deliberate, and probably not harsh, the result is continued attachment to parents along with a lack of normal social development outside the family" (35). He may even retreat into more dependent behavior. Even where he is able to change, it is only with considerable effort, and often after highly turbulent parent-adolescent conflicts.

Farnham (16) has described the case of a parent who came to her in alarm when her 13-year-old daughter announced in icy terms one day, "I hate you." It became obvious upon investigation that while the girl had always been a model child from her parent's point of view, the whole relationship had been based on a system of parental dominance and filial submission. During the past year the child had attempted to assert herself in an effort to achieve independent feminine status. This was resisted by the mother, until finally the issue was brought to a head by an apparently trivial argument having to do with "hours and limitations on her freedom." It was then that the daughter announced her hatred.

Fortunately this child was able to assert some independence (though at considerable emotional cost) despite a long history of having been rewarded primarily for dependent responses. Other children, however, are often so strongly rewarded for dependency responses and so severely punished for independent responses, that such rebellion is not possible for them. They remain hopelessly dependent. Furthermore, as cultural demands for independence increase, this dependent behavior becomes progressively more inappropriate.

While the overly dependent child faces special problems of adolescent emancipation, it should not be assumed that all children who approach adolescence with well-developed independency responses will necessarily establish a successful adjustment. For example, the rejected child may have been forced to develop a certain amount of independence; but as a result of his rejection, he may develop a strong resentment toward his parents for their behavior. He may then generalize this resentment to the society at large. The other side of the coin of emancipation from parents is successful integration into the wider community. While the

overly dependent child may have difficulty with the emancipation aspects, the relatively independent, but rejected and resentful youngster may have trouble fitting himself cooperatively into the adult social order. As a result of stimulus generalization, his attitudes toward the society may become permanently fixed (just as they have toward his parents) in the form of hostility and suspicion.

On the other hand, the child who has already attained some status within his family as an independent person by adolescence, whose opinions are considered worth respect, who is given responsibility, and who is loved by his parents, may be expected to weather the storms of adolescence reasonably well. Independence-dependence problems will still exist, and they will no doubt produce minor crises at times within the family structure. But they will not assume unmanageable proportions, and they will eventually resolve themselves as adult status is gained.

PARENTAL ATTITUDES TOWARD ADOLESCENT INDEPENDENCE. We have already seen that there are likely to be contradictions in attitudes toward adolescent independence, not only *between* various agents of the adult culture, but also *within* the individual parent. It is this second type of contradiction which is likely to be most difficult for the adolescent to cope with because of its elusiveness. When one voice of the culture, such as the church, issues a particular set of directives for adolescent behavior, and another voice, such as the peer group, issues another, the adolescent may be in conflict, and he will be forced to choose between them. But at least in this situation he has a clear recognition of the attitudes with which he is dealing. On the other hand, when a parent proclaims, for example, that he wants his son to be independent, but covertly does everything he can to prolong dependency, the result is likely to be confusion for the adolescent. His position becomes similar to Alice's in her encounter with the Mad Hatter—nothing is ever quite what it seems. Because of the difficulty of identifying and labeling parental attitudes correctly, he finds it almost impossible to deal with them rationally.

Parental inconsistencies with regard to emancipation may simply reflect confusion on the part of the parent as to the role society expects him to play. (When *should* he permit a child to date, to have his own spending money, to drive a car, to make his own decisions?) If so, the problem of helping the parent to achieve consistency may be merely one of education. More often, however, a parent's inconsistencies seem to result from his own contradictory needs—needs that are deeply rooted and not infrequently unconscious. Many parents, for example, genuinely want their children to become able to handle their own affairs because they

realize that ultimately this will be necessary. But at the same time, they are likely to want to continue to protect their children from the unpleasant realities of existence—an impossible task (15).

There are of course many other possible sources of a parent's inconsistencies. A parent with strong needs to be all-powerful and all-wise in the eyes of others may in reality have gained little recognition from the world at large. As a result, he may be unwilling to grant his child independence, since an inevitable corollary of independence is a renunciation of the idea that any one, including one's parents, is always right and can be trusted to run one's life adequately.

Similarly those parents who feel unloved by their marriage partners or their friends may be reluctant to see their children begin leading their own lives. For they realize, either consciously or unconsciously, that another of the inevitable consequences of independence is a shift in primary affectional goals from parents to other important life figures—whether sweetheart, marriage partner, or one's own offspring. As Meyers states, "Allowing a child to achieve emancipation, will be difficult in proportion as the parent has achieved satisfaction, knowingly or not, for his own wants by loving and controlling his child. If the child is providing gratification and compensation for frustrations arising elsewhere, he will be surrendered reluctantly, surrendered at a cost, or not surrendered at all" (35).

The parent who possess secret needs for sexual delinquency may project these desires on to the child, and hence become fearful of what the child may do if left to his or her own devices. As a result, the parents may become unduly repressive in controlling the child's activities.

English and Pearson (15) point out that many parents, while consciously desirous that their children lead a happy and rewarding life, often keep them tied to their parental apron strings through jealousy. Unconsciously, they do not want their children to enjoy good times that they themselves have missed.

There are, of course, many other reasons why parents may be reluctant to grant their children independence, such as fearing that they may marry too young and thus require a longer period of financial support. Parents may also fear that a young person will marry unwisely, or marry the wrong person, or someone beneath him—whatever that may mean to the particular family. Moreover, they fear there is a real danger of sexual indulgence before marriage and that this friendly proximity is going to be a temptation to sexual intercourse, with the resultant danger of illegitimate pregnancy or disease and the consequent disgrace (15).

In general, it appears that the most common source of parental ambivalence (mixed feelings) toward the child's assumption of independence is the realization on the one hand that the child must someday stand on his own feet; but the coexistent fear that in learning to do so he will be deeply hurt. A great many of these fears, however, are unfounded.

Children will, of course, make mistakes, and they may even be hurt. This is unfortunate. But the chances of their being seriously harmed seem to us much less if they are allowed to learn independency responses gradually, while they are still able to turn to their parents for support, than if they are suddenly thrust out into the world at the age of twenty-one, totally unprepared to act independently.

Horrocks offers a worth-while caution, however, in regard to parents' attempts to help their children achieve emancipation: he points out that extremes can be exceedingly dangerous, and that while it is necessary for the parent to promote independence, "there is danger that a child may be emancipated too early, or that emancipation may be too vigorously or too harshly promoted" (22). He adds that, "Emancipation cannot be achieved overnight and the wise parent will make it a gradual process of induction over a period of time so that the adolescent will not lose his sense of security, or misunderstand the motives of his parents. . . . The problem seems to be that of striking a golden mean between overprotection and overrestriction on the one hand, and absolute independence on the other" (22).

OTHER FACTORS AFFECTING EASE OF EMANCIPATION. In addition to parent-child relationships, there are a number of other factors which can facilitate or retard emancipation from the family. It is not enough for the parents to reward responses of greater responsibility, to encourage independence, to withdraw their emotional protectiveness gradually—while at the same time continuing to show their love and acceptance of the child. The adolescent must also be given an opportunity by the society to act like an adult, to put independency responses into practice. He must find enough security in his contacts with peers and nonparental adults to compensate for the loosening of family ties, and in addition, he must be motivated by the society to want to be an adult. In other words, he must be shown that society will reward independent, adultlike behavior, as, for example, by granting him increased prestige and greater privileges.

Other factors, such as the child's general approach to experience, the rate at which he matures physically, and his sex membership will also play an important role. Outgoing children are less likely to have difficulty in emancipation than their more sensitive, introspective peers, since they

are more likely to try out the aggressive, self-assertive responses which lead to social rewards. Physical growth is also an important factor in determining the speed of emancipation, since adults tend to base their expectations of mature behavior more on the child's size than on his actual age (4). It has been found, for example, that taller, heavier, stronger children tend to be rated as more highly emancipated than their peers (12). Moreover, there is evidence that in dealing with same-age children, parents and teachers tend to treat those who are more advanced physically more maturely (4).

Another study indicates that among college students, boys tended to be more emancipated from their families than girls (39). Much of the difficulty adolescent girls experience tends to focus in the home because parental attitudes have not kept pace with social changes in the status of women (2). Parents tend to take their son's emancipations for granted, but they appear unwilling to "acknowledge the same emancipation needs in their daughters; instead of relinquishing some control at adolescence, they seem to impose more rather than less supervision" (2).

Stability of Dependent and Independent Behavior

Study of the Fels children from early childhood through adulthood revealed that those girls who had achieved relative independence from their family during adolescence continued to be independent and self-sufficient as adults: the dependent adolescent girls were, as women, still dependent on their family (23). As preadolescents and adolescents, these girls were observed at home and at the Institute and were interviewed by Fels' psychologists. In contrast to girls who showed self-sufficiency during adolescence, those who frequently relied on their mothers for help with problems were, as women, still dependent upon their family. These women consulted with their mothers before making major purchases, preferred to live close to their family, and felt a strong need to keep a close tie to their family (23).

Dependent or independent behavior was less stable for the boys because society encourages the adolescent boy to become independent. Thus, if he has previously been overly dependent, parents and peers will put pressure on him to develop more independent behavior. This pressure forces some boys to inhibit overt dependent behavior, thus making it more difficult to predict the degree of dependent behavior in an adult man from observations of his behavior as an adolescent. Dependent behavior is socially more acceptable for girls, and a girl who is excessively dependent as an adolescent is more likely to remain dependent through the early adult years (23, 24).

One of the women in this study was interviewed when she was 23 years old. She was unmarried and living with her parents. During the interview she was very dependent on the interviewer for guidance and was generally timid and shy. She typically withdrew from stressful situations and denied the consequences of her maladaptive withdrawal by saying, "I'm not a worrier."

She was very sensitive to the opinions of other people and usually conformed to their expectations of her. She accepted her passive-dependent role with people in authority and with love objects, tended to be very dependent on peers for advice, liked being close to her family, and saw herself as inadequate in the face of problem situations.

This woman's behavior has been observed repeatedly during the childhood years, and the following excerpts from these observations reveal that, as a child, she was also unusually dependent and timid with other people.

Age 2 years, 6 months; Fels Nursery School observation. At the first day of nursery school, S seemed rather frightened and very reluctant to leave her mother this morning. The mother had to carry her and hold her in the car until the door was shut. For the first few miles she cried and then suddenly stopped and began to take an interest in the various animals and objects. She cried when she reached the nursery school but stopped as soon as she left the other children. On the second day of nursery school she cried again but seemed much less frightened and more angry. During the nursery school she stood watching the other children and at one point ran to another girl and stood beside her. The other little girl paid no attention, and S trailed after her. S wandered around and, when the teacher went to the house, S rushed to follow her and stood around the teacher, S tagged after another little girl all morning. During the nursery school two-week period she was timid and tense.

Age 3 years: Fels Nursery School Summary. At first, S was timid and tense and was gathered under the wing of another peer and her cohorts. From then on she was "at home" with the group. She followed another girl's lead and joined in the activities the other girl organized. On days when this girl was absent she was at loose-ends and tended to return to her original dependence on an adult. Several weeks after her nursery school stay she visited the school one morning for several hours. She was a little apprehensive at first but made no real protest. She stood around not joining in the play until an adult suggested an activity.

Age 4 years: Fels Nursery School Summary. S cried the first day of nursery school after she saw another girl cry. She stayed close to the teacher the first few days and watched the other children with a worried expression on her face. Indoors she chose small blocks or color cubes to play with. In the yard S was very cautious about trying out the apparatus, particularly when there was any balancing involved. She has a high, whining nasal voice, and several letter substitutions made her speech rather difficult to understand. She complied readily with adult requests. Frequently, she appealed to adults for help in

conflicts, such as getting a turn to slide, which is a situation she could have handled for herself.

Age 6 years: Visit to the School. S is retiring, quiet, and shy. She doesn't show the enthusiasm that most of the children in the class do. She seems content. . . . She goes to the teacher for suggestions and skips to her seat jubilantly with a word of approval from the teacher. S recites a bit timidly in front of the whole class but accepts the teacher's support and gets through successfully. Her voice is a little soft and her enunciation is not clear. S volunteers information a bit tentatively and without enthusiasm. The teacher reports that S is about the brightest of the average group. S is not a leader but she is very sweet and cooperative and is never any trouble.

Age 6 years, 6 months: Summary of Fels Day Camp Observations. S was outclassed in almost every respect in this group but fluttered happily about after the others doing the best she could. She occasionally withdrew or grew silent but, when encouraged by an adult, she soon recovered. She was not insensitive and did not seem to have her security disturbed more than momentarily. She seems to feel a great confidence and trust in adults and could always be bought off or led along. She lacked initiative in almost every way. She could not go ahead on any craft project nor could she assert herself socially. She needed help and encouragement, hung about the adults, not exposing herself to the center of the group. She is essentially a conformist and wanted only to do what was right. She got into no mischief and had little sense of fun. She was happiest when settled into a situation that was approved and guided by an adult, and at these times she would proddle along very happily. Her main interests lay in conforming to any plans laid by adults and working on simple handcrafts. She was rather unsure in her accomplishments. She was often physically apprehensive.

Age 7 years, 6 months: Summary of Fels Day Camp Observations. The most characteristic aspect of S's day camp behavior was her ability, high conformity, and social reticence. She did not participate in social activities to any extent and was generally ignored by the other children. She clung to adults, wanted to assist them when possible, and wanted their approval and comforting in all her activities. She seemed to be somewhat apprehensive of physical contacts, especially if they became at all rough. She was apprehensive about almost any physical danger. Her actual physical ability was not particularly poor, and, when she was put into athletic situations, she did surprisingly well. Her general lack of physical participation seems not to be due to poor ability as much as to lack of motivation and apprehension.

Age 8 years: Visit to the School. S is always anxious to do what is right all of the time. She is not a discipline problem. S shows no interest in physical activities. Initially, she is lost at school work and takes some time to adjust to new work. S was pretty tentative in her first attempt to get the teacher's attention and held up her paper hesitantly. She was very pleased when the teacher came to her. She was uncertain about the problems although they had similar ones before.

Age 8 years, 8 months: Fels Day Camp Summary. S is a small, dark looking girl, bent over, with thick dark hair and a tired face. Her voice is high but with no force; her hands hanging limp at the wrists. Much of this lack of force

seemed related to her personality, and at the races she surprised us by doing remarkably well. S obeyed adults implicitly and wanted to have their sanction for even small acts which the group had already been given permission for. She has a rather cringing, servile manner. This clinging around adults was particularly marked the first day when she ate her lunch with them.

Age 9 years, 8 months: Fels Day Camp Summary. S is a rather pathetic looking little girl. Rather thin, droopy eyed, clammy handed, somehow reminiscent of an orphan in an old melodrama. She seems nearer to seven or eight than her actual age and with a kind of naivete and unsureness about all she did. She was an exceedingly compliant child in taking the tests, even the reading tests which she obviously disliked, without a murmur.

Age 14 years, 3 months: Teacher's description. S is a good student. She is capable but too timid to take the lead that she is capable of. She is conscientious about studies and willing to help with anything that is suggested. She is backward in her social relationships and hesitates to ask questions of the teachers. She is very retiring, a perfect lady. One teacher commented, 'She will never set the world on fire, but she will always do what she is supposed to do.'

This extreme degree of continuity of dependent behavior is not typical of most girls. However, this girl's familial environment and peer relations remained stable and she did not travel far from home. Under such environmental circumstances we would expect that, if a response (dependency in this case) were unusually strong at age 6 or 7 and did not conflict with sex-role standards, it should remain a characteristic part of the individual's personality.

VOCATIONAL CHOICE

The problem of deciding on a vocation is probably more critical for the adolescent boy than for the adolescent girl. Pressures on him to select a career are somewhat similar to those that promoted the need for independence. First, parents, teachers, and peers encourage the boy to make this decision during this period. Second, in order to maintain an identification with the adult role, he must decide on some vocation. Most adult males have chosen a way to make a living, and in order to assume the role of adult the boy must also make a vocational commitment. Finally, a vocation offers the adolescent a socially approved way to achieve indirect or substitute gratifications for motives which may have become strong, but not fully gratified, during the preceding decade. For example, motives such as social recognition, dominance over others, aggression, nurturance, and occasionally, sexual curiosity can be at least partially gratified in a variety of occupations. The choice of the Army as a career may be motivated, in some cases, by the desire to dominate

other men and gratify aggressive urges. Medicine, law, or the theater afford opportunities for social recognition and prestige in the community. Social work, nursing, or medicine offer the adult an opportunity to nurture and to care for other people.

Of course, the adolescent may not consciously recognize all of the motives that direct his selection of a career. However, most adolescents have a fantasy picture of what an engineer, army officer, physicist, lawyer, social worker, nurse, actor, or psychiatrist does—a daydream that contains some of the gratifications that are being sought. The process of adopting a socially acceptable outlet for a strong motive has been called *sublimation* by psychoanalytic writers.

Vocational Adjustment in Other Cultures

In many primitive societies, the vocational problems of the adolescent are much simpler than in our own culture. The number of vocations supported by the culture are fewer, and the adolescent is already likely to be familiar with them—either through observation or apprenticeship.

Among the Arapesh, for example, children know from an early age the vocational demands they will have to face as adults, and begin to learn responses which will be useful in meeting them. The Arapesh boy knows that when he becomes a man, the garden that he has been helping his father to tend will finally become his own responsibility, and he will then have the duty of seeing that his parents are fed, just as they have in childhood had the duty of feeding him. He knows that on hunting trips, or expeditions into the bush to gather herbs or to cut wood for the house building, it will be his responsibility to see that the job is done correctly. Instead of being a little boy tagging along behind his father or older brother, he will become the leader, and his own little brother or son will be tagging along after him (33). The vocational future of the Arapesh boy is highly predictable; he is not troubled by the possibility that there will be a flood of yam growers or lizard hunters on the labor market which will throw him out of work. He will simply go on to do what his father had done before him, and what, in childish ways, he has been preparing himself to do since early childhood (33).

Similarly, the Arapesh girl begins to assume domestic duties at an early age, first in her parents' home, and by the age of 9 or 10 in her future husband's home (33). She learns to carry small bundles on her head in leisurely preparation for the day when as an adult she will carry large ones. She learns to help in harvesting the family's crops, and to assist with the cooking and other household chores.

Throughout Arapesh culture there is a gradual transition from the life of the child to the life of the adult, in work as well as social relations. Because the child learns his vocational role gradually, little frustration occurs at any one time, and the disorganizing anxiety that comes from finding that one's old responses no longer lead to reward is kept to a minimum.

On the other hand, the vocational problems of the adolescent in some cultures are more complex than those in our own society. The Manus adolescent, for example, probably faces more severe demands in adolescence than does the youth in our own culture, and is probably less prepared to meet them. In his early years the Manus child lives a happy and carefree existence (3). At adolescence, however, he is suddenly thrust into a ruthlessly aggressive and competitive adult society based largely on material values (3).

The Manus adolescent can expect no genuine assistance from family, friends, or society in getting started in adult life; nor can he join in any communal economic enterprise. He has no choice but to become an independent entrepreneur, and to surrender his self-respect by borrowing from . . . "big men" in the village the wherewithal to do so. Release from this humiliating dependence can be accomplished only by emulating the culturally valued traits of unrelenting industry, acquisitiveness, and ruthless unconcern for human values. In this way he may himself become a successful and prosperous man of property on whom others in turn become dependent (3, 19).

Vocational Adjustment in American Culture

The typical adolescent in our own society, while spared the severe vocational problems of the Manus adolescent, does not share the advantages of the Arapesh youth. He knows that many of his important satisfactions will depend on his ability to find and keep a job, including his chances for full emancipation from his parents, for acceptance as an equal by his peers, for getting married and maintaining a home.

But despite the importance of vocational adjustment for the American adolescent, he typically has only a vague idea of the nature of the various jobs available in the society. He does not know which he would be able to do successfully and would enjoy doing, the prior training required for a specific job, or the present or future demands for workers in the various occupations.

Ordinarily, as the adolescent leaves his childhood behind, and the time when he must support himself approaches, he begins to spend more of his time thinking about vocational goals.

He also becomes progressively more realistic about these goals. As a child, he is likely to have preferred occupations which seemed active and exciting to him, such as those of cowboy, fireman, airplane pilot, or detective. The social status of his preferred occupation is not likely to have had much influence on him. However, as he grows older, he is likely to begin to prefer occupations of marked prestige in the adult world—being a famous doctor, scientist, or lawyer. Finally, as adulthood approaches, he is likely to settle upon some occupation that represents a realistic reconciliation between what he would like to do and what he thinks he might actually be able to do.

As the child's vocational interests become progressively more realistic, more influenced by status and less by glamour and excitement, they also become more stable. For example, it has been shown that the older the adolescent, the more stable (i.e., the less changeable) his vocational interests become (as measured by vocational interest tests repeated after a given interval of time) (11). By middle adolescence, vocational interest has become fairly stable, though changes may still occur. By age 25, practically complete stability is achieved.

Despite the increasing stability and realism of the adolescent's vocational interests, there is considerable evidence that he cannot be left to his own devices in dealing with his vocational problems. In a complex society such as ours, where the actual requirements of most jobs and their availability in the labor market are not matters of common knowledge, the adolescent needs help.

In our culture, the young person's vocational interests usually develop in a rather unsystematic fashion, guided by such influences as parental desires, accidental contact with various occupations, the kinds of jobs his friends choose. Class and sex-typed standards also play a role, as we shall now see in more detail.

Subcultural Influences on Vocational Choice

Up to this point in the discussion, we have been dealing with broad problems of vocational choice as they affect adolescents in our culture. There are, however, two subcultural influences which affect vocational goals differentially, and which seem to us important enough to merit special consideration.

SOCIOECONOMIC FACTORS AND VOCATIONAL GOALS. Social-class membership operates to influence vocational goals in a variety of ways. For one thing, it helps to determine the kinds of occupations with which the individual will be familiar, and hence which he will be likely to consider

in formulating his occupational aims. In addition, it plays an important role in determining the social acceptability (i.e., the reward value) of a given occupation to the young person and to his peers. As pointed out previously the individual's social-class status is related to his occupation. Certain types of occupations are considered appropriate to the members of a particular social class, others inappropriate. The individual who deviates from class expectancies for occupational choice is likely to be subjected to anxiety-producing disapproval from his peers, particularly if this deviation is in the direction of jobs associated with lower-class status. The very young upper-class child who wants to be an iceman, or fireman, or policeman, may be indulged or even encouraged. After the attainment of adolescence, however, when the problem of vocational choice becomes a serious one with practical implications, the child's parents are not likely to find such notions amusing (3).

Choices of lower-status occupations run counter to the parents' ideas about appropriate behavior for a member of their social class, and consequently are likely to be discouraged. The parents may also fear that such a choice will lead to general social disapproval both of their child and indirectly to themselves. Also where economic rewards are involved in the occupation chosen, they may fear that the child will not be able to live in the same neighborhood as other members of his social class, to afford the same social, recreational and educational advantages for himself and his family. As Levin (31) states, "occupations must be selected, consciously or otherwise, in terms of their value in either maintaining the present class membership, if that is adequate to the individual's level of class aspiration, or in terms of their value in facilitating the individual's climb to the class considered higher, if he is motivated to do so" (29).

Aspirations toward higher-social-status occupations may also lead to social disapproval (particularly if they are flaunted openly), since such aspirations may be viewed as a threat by other members of the individual's social class. In this case, however, the disapproval is likely to be much less strong and, in the child's view, may be more than outweighed by the prospect of increased rewards associated with higher-class status. This observation is supported by the fact that actually most young people wish for jobs having a somewhat higher socioeconomic status than those of their parents (29).

The relation of social-class membership to vocational aspiration is clearly demonstrated in a study by Hollingshead (21). Adolescents in a small midwestern city were asked to list the occupations they would like to follow as adults. The results, subdivided according to social-class mem-

bership, are shown in Fig. 50. As may be seen, while 77 percent of the children of the highest two social classes listed business and professional occupations, only 7 percent of the children in the lowest social class made these choices. Similarly, while only 1 percent of Class I and II (higher social class) members listed the various services and trades, 25 percent of class V (lower social class) did. It is interesting to note that the number of youths undecided about their vocational aspirations increased regularly as socioeconomic class decreased.

Social-class and ethnic-group membership are associated with the learning of values concerning the possibility of success for effort. Some ethnic groups among the lower classes (i.e., Southern Italians, for example) communicate to their children that planning, education, and effort are not worthwhile, for fate can easily upset plans and good intentions. Middle-class Jewish adolescents, on the other hand, are more

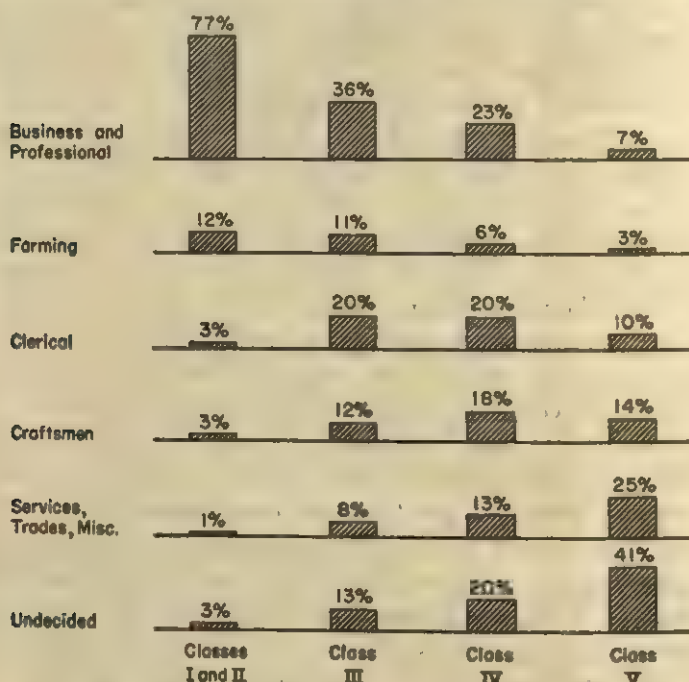


FIG. 50. Vocational aspirations of adolescents of different social classes. (From K. C. Garrison, *Psychology of adolescence*, 5th ed., New York: Prentice-Hall © 1956. After A. B. Hollingshead. *Elmstown's youth: the impact of social classes on youth*. New York: Wiley, 1949. With permission of Prentice-Hall, Inc., and John Wiley & Sons, Inc.)

likely to believe that the individual can improve his social status through effort, especially through education. It is not surprising, therefore, that many more adolescents of Jewish than of Southern Italian descent plan for a college education and a professional occupation (41).

There are other important factors associated with social class which affect vocational aims. While adolescents may be somewhat unrealistic about their vocational goals, they possess some awareness of practical obstacles which may modify their vocational aspirations.

The boy whose parents are unwilling or unable to help him go to college, much less to medical school, is less likely to aspire to be a doctor than one whose parents encourage such a vocational choice. Similarly, the boy whose parents expect him to go to work upon completion of the ninth grade is not likely to spend much time contemplating the idea of being an engineer.

In addition to limiting the adolescent's opportunity for training in a particular occupation, social-class factors are also likely to influence his chances of obtaining some jobs, even if qualified. Persons in a particular social class tend to pick others from the same social class as their colleagues and successors. While this is often done without conscious awareness, it is done nevertheless. The employer may say that a person from another social class does not have the right sort of personality for a particular job, when he means that he does not have the same sets of class-learned social traits as others holding that position.

"It would not even be rash to assume that many of the emotional and personality requirements of various occupations are fundamentally based on class-status factors and not on job requirements, as such. Thus the professional is expected to appear, behave, feel, and think quite differently than the skilled worker, and even more differently than the semi-skilled or unskilled worker. The stereotyped hierarchical classification of vocations is essentially a reflection of their class-conferring character" (31).

To a certain extent, such attitudes may be justified in that people with similar social backgrounds may find it easier to deal with one another in the job situation. But it appears that the importance of socially derived personality characteristics is often exaggerated by employers. This may be attributable in part to their need to maintain their own status as members of a particular social class.

Apart from social-class membership, there are a number of other general socioeconomic conditions which influence the adolescent's vocational aspirations.

"Such conditions include the general occupational outlook as determined by a war-time economy or by economic depression and prosperity, as well as more specific regional or industry-wide fluctuations and job demand. They affect not only the relative attractiveness of different occupations, but also the degree of social mobility and the disposition of the adolescent to aspire to higher levels of vocational status" (3).

SEX DIFFERENCES IN VOCATIONAL ADJUSTMENT. Cultural demands in regard to preparation for a vocation differ significantly for boys and girls in our society. In the case of the boy, the society appears to say: You must prepare yourself adequately for a vocation, since your success in work will largely determine your ability to feed yourself and others, your readiness to marry, and to a significant extent, the social status of your family. For these reasons, vocational success acquires great reward value for boys at all socioeconomic levels as adolescence progresses.

With girls, however, the position is somewhat different. Most girls expect, and are expected by society, to prepare themselves for a vocation. For example, a study of 6,000 Michigan teen-agers (49) showed that most adolescent girls think they should work for at least a year or two before marrying. Most of them, however, also feel that their primary goal is marriage. And it is certainly true that such attitudes are reinforced by the society generally. For while a man's status in the socioeconomic hierarchy stems largely from his job, that of the average woman is derived primarily from their husband's position. To the extent that she has *independent status*, it is based, not so much on her vocational competency, as on her success as a wife, mother, and manager of the home. It is on such criteria that her adequacy as a female is most often judged by society.

Probably for these reasons, most girls are willing to settle for more subordinate kinds of jobs than their male peers. They need a job only to tide them over until they marry, or as a supplemental source of income. They do not need it as a primary source of social status.

The Douvan and Kaye study of adolescent girls referred to earlier revealed that the vast majority of girls chose office work, nursing, or work as an airline stewardess as their preferred occupational choice (76 percent). About 29 percent were interested in a job requiring a college education or advanced specialized training (doctor, teacher, artist) (13). But only one girl out of ten had any serious commitments to a job that might be regarded as a career, and 52 percent of the girls felt no strong desire for a working career. As the typical adolescent girl matured (age 18 as compared with age 13), she became less interested in a career

and more interested in becoming a housewife and mother. In general, many young adolescent girls (aged 13, 14, 15) stated an interest in high-status jobs—an interest which was unrealistic in terms of their abilities, socioeconomic background, and the job market. With age, most of these girls became more realistic and gave up unreal aspirations (13).

In one respect, however, the vocational problems of girls appear more complicated than those of boys. For while few girls would prefer a job to marriage, many girls feel that outside jobs are more rewarding and more interesting than housekeeping. This is particularly likely to be true of girls with higher education, who are more likely than their less-educated sisters to have been taught to view vocational success as important. Such girls may also see a greater discrepancy between what they are capable of doing (in a job) and what they must do in taking care of a home. This is not surprising when we consider that most of these girls receive more training in outside vocations than in home care prior to marriage. In our educational system the talent required for professional success is often emphasized, while the talent required for creating and maintaining a successful home is frequently ignored.

In the light of these realities, the agents of higher education in our culture—teachers, deans, administrators, as well as parents—might do well to consider placing a greater emphasis on the creative character of motherhood and homemaking and on the skills necessary for doing them well. Thus they might help many girls to avoid building up vocational ambitions which will prove incompatible with the demands of marriage and a home. We are not challenging here the girl's right to equal professional status with men, but we are questioning the tendency in some educational circles to overemphasize professional success for women, as compared with success as a wife, mother, and homemaker. Furthermore it is not a matter of inventing pretty phrases to make the woman feel important in a necessary but actually unimportant role. For as we have already seen throughout this book, in most cases it is the woman, who, as a mother, is the most significant influence in determining whether the lives of other human beings, her children, will be happy or unhappy.

REFERENCES AND ADDITIONAL READING

1. Anastasi, A., & Miller, S. Adolescent "prestige factors" in relation to scholastic and socioeconomic variables. *J. soc. Psychol.*, 1949, 29, 43-50.
2. Ausubel, D. P. *Ego development and the personality disorders*. New York: Grune and Stratton, 1952.

3. Ausubel, D. P. *Theory and problems of adolescent development*. New York: Grune and Stratton, 1954.
4. Barker, R. G., Wright, B. A., & Gonick, M. R. *Adjustment to physical handicap and illness*. Bulletin No. 55. New York: Social Science Research Council, 1946.
5. Bell, H. M. *Youth tell their story*. Washington: American Council on Education, 1938.
6. Bene, E. Suppression of heterosexual interest and of aggression by middle class and working class grammar school boys. *Brit. J. Educ. Psychol.*, 1958, 28, 226-231.
7. Benedict, Ruth. *Patterns of culture*. Boston: Houghton Mifflin, 1934.
8. Benedict, Ruth. Continuities and discontinuities in cultural conditioning. In Martin, W. E., and Stendler, C. B., *Readings in child development*, New York: Harcourt Brace, 1954, 142-148.
9. Block, V. L. Conflicts of adolescents with their mothers. *J. abnorm. Soc. Psychol.*, 1937, 32, 193-206.
10. Butterfield, O. M. Love problems of adolescents. *Teach. Coll. Contr. Educ.*, 1939, No. 7.
11. Carter, H. D. The development of interest in vocations. In *Adolescence*. 43rd Yearb. nat. Soc. Stud. Educ., Part I. Chicago: Univer. of Chicago Press, 1944.
12. Dimock, H. S. *Rediscovering the adolescent*. New York: Association Press, 1937.
13. Douvan, E. A., & Kaye, C. *Adolescent girls*. Ann Arbor: Publication of Survey Research Center, Univer. Michigan, 1957.
14. Ehrmann, W. W. Dating behavior of college students. *Marriage Fam. Living*, 1952, 14, 322-326.
15. English, O. S., & Pearson, G. H. S. *Emotional problems of living*. New York: Norton, 1955.
16. Farnham, M. L. *The adolescent*. New York: Harper, 1951.
17. Ford, C. S., & Beach, F. A. *Patterns of sexual behavior*. New York: Harper, 1951.
18. Frank, L. K. Adolescence as a period of transition, in *Adolescence*. 43rd Yearb. nat. Soc. Stud. Educ. Part I. Chicago: Univer. of Chicago Press, 1944.
19. Hicks, J. A., & Hayes, M. Study of the characteristics of 250 junior high school children. *Child Develpm.*, 1938, 9, 219-242.
20. Hohman, L. B., & Schaeffner, B. The sex lives of unmarried men. *Amer. J. Sociol.* 1947, 52, 501-507.
21. Hollingshead, A. B. *Elmtown's youth: the impact of social classes on youth*. New York: Wiley, 1949.
22. Horrocks, J. E. *The psychology of adolescence*. Boston: Houghton Mifflin, 1951.
23. Kagan, J., & Moss, H. A. The stability of passive and dependent behavior from childhood through adulthood. *Child Develpm.*, 1960, 31, 577-591.
24. Kagan, J., & Moss, H. A. *Birth to maturity*. New York: Wiley, 1962.
25. Kinsey, A. C., Pomeroy, W. B., & Martin, C. E. *Sexual behavior in the human male*. Philadelphia: Saunders, 1948.

26. Kinsey, A. C., Pomeroy, W. B., Martin, C. E., & Gebhard, P. H. *Sexual behavior in the human female*. Philadelphia: Saunders, 1953.
27. Kohn, M. L. Social class and parental values. *Amer. J. Sociol.*, 1959, **64**, 337-351.
28. Komarovsky, M. Cultural contradictions and sex roles. *Amer. J. Sociol.*, 1946, **52**, 184-187.
29. Kroger, R., & Louttit, C. M. The influence of father's occupation on the vocational choices of high school boys. *J. appl. Psychol.*, 1935, **19**, 203-212.
30. Lansky, L. M., Crandall, V. J., Kagan, J., & Baker, C. T. Sex differences in aggression and its correlates in middle class adolescents. *Child Developm.*, 1961, **32**, 45-58.
31. Levin, M. M. Status anxiety and occupational choice. *Educ. psychol. Measmt.*, 1949, **9**, 29-38.
32. Lynd, R. S., & Lynd, H. *Middletown*. New York: Harcourt Brace, 1929.
33. Mead, M. *From the south seas*. Part III. Sex and temperament in three primitive societies. New York: Morrow, 1939.
34. Mead, M. *Male and female*. New York: Morrow, 1949.
35. Meyers, C. E. Emancipation of adolescents from parental control. *Nerv. Child*, 1946, **5**, 251-262.
36. Ramsey, G. V. The sex information of younger boys. *Amer. J. Orthopsychiat.*, 1943, **13**, 347-352.
37. Remmers, H. H., Drucker, A. J., & Christenson, H. T. Courtship conduct as viewed by high school youths. Purdue Opin. Panel, X, No. 2 (Report No. 27), 1950.
38. Rockwood, L. D., & Ford, M. E. *Youth, marriage, and parenthood*. New York: Wiley, 1945.
39. Sherman, A. W. Emancipation status of college students. *J. genet. Psychol.*, 1933, **43**, 422-437.
40. Stoke, S. M., & West, E. D. Sex differences in conversational interests. *J. soc. Psychol.*, 1931, **2**, 120-166.
41. Strodbeck, F. L. Family interaction, values and achievement. In McClelland, D. C., Baldwin, A. L., Bronfenbrenner, U., and Strodbeck, F. L. (Eds.), *Talent and society*. Princeton: D. Van Nostrand, 1958, 135-194.
42. Taylor, K. W. *Do adolescents need parents?* New York: Appleton-Century-Crofts, 1938.
43. Tryon, C. M. Evaluation of adolescent personality by adolescents. *Monogr. soc. Res. Child Developm.*, 1939, **4**, No. 4.
44. Wallin, P. Cultural contradictions and sex roles: a repeat study. *Amer. soc. Rev.*, 1950, **15**, 288-293.
45. Wattenberg, W. W. Factors associated with repeating among preadolescent delinquents. *J. genet. Psychol.*, 1954, **84**, 189-196.
46. Wattenberg, W. W. *The adolescent years*. New York: Harcourt Brace, 1955.
47. West, J. *Plainville*, U. S. A. New York: Columbia Univ. Press, 1945.
48. Whiting, J. W. M., & Child, I. L. *Child training and personality: a cross-cultural study*. New Haven: Yale Univer. Press, 1953.
49. Youth and the world of work. East Lansing: Social Research Service, Michigan State College, 1949.

15

PSYCHOLOGY OF THE ADOLESCENT

II. MORAL STANDARDS AND JUVENILE DELINQUENCY

In the previous chapter we considered the problems that the adolescent faces in the areas of sex, independence, and vocational choice. In this chapter we shall consider some of the general issues associated with the establishment of a moral code and value system and discuss one of the major social problems of adolescence—juvenile delinquency.

MORALITY AND VALUES

In our culture, adolescence is commonly viewed as a time of moral confusion and conflict—a time when the moral standards of childhood may undergo important changes. What do we mean by a moral standard? This term refers, in its broadest sense, to a belief regarding the appropriateness or inappropriateness of certain forms of behavior.

In our society, there are a few areas of behavior for which the relevant moral standards undergo change with age. These include independence, dependence, aggression, sexuality, religious practices, honesty, sympathy, sincerity, and excessive competition. Attitudes about the appropriateness of each of these behaviors (i.e., moral standards) may change during the adolescent period. This can happen for one of three reasons: (1) conformity to others (e.g., peers) in order to gain acceptance or to avoid rejection, (2) adoption of an attitude of a model in order to strengthen one's identification with the model, or (3) adoption of new attitude in order to maintain congruence and consistency with the rest of the individual's values (23). The changes in moral standards that occur during adolescence may be the result of any of these three processes. On the one hand, the peer group attempts to coerce the individual to adopt its standards about sex, aggression, independence, or religion. Some adolescents may behave in a way consonant with the group's values and openly

state a set of beliefs that agree with those of the group. But these beliefs may be weak, and held only because the adolescent wants to maintain acceptance by his friends.

Other beliefs are formed as a result of the adolescent's selection of a hero or heroine and the subsequent adoption of the hero's moral standards in order to strengthen an identification with this model. Thus, some adolescents may adopt the liberal religious or sexual views of a young adult whom they admire. The maintenance of a value that is identical to one held by the respected hero strengthens the youth's identification with this idealized figure, and makes the adolescent feel stronger and more adequate.

Finally, the adolescent may change one or more of his moral standards as a result of certain experiences, sometimes traumatic and sometimes involving interpersonal relations, which lead him to question the consistency of his value system. Most individuals have a strong need to regard their collection of attitudes as logical and rational. It is disturbing to discover that one holds values that are inconsistent.

Of course, many individuals delude themselves into thinking that their values are consistent, when in fact, this is not the case. However, the important thing is that the individual *consciously* believe that his values are consistent with one another. If a series of experiences cause him to question this consistency, he is likely to change one or more of his values in order to restore consistency. Thus, one adolescent may evolve a value system that emphasizes the importance of rationality. No value would be taken seriously unless it matches rational laws or experience. This value might clash with a pre-existing belief in a formal religion. In order to maintain consistency, the youth's attitudes about religion might undergo some change.

Similarly, an adolescent may have evolved a set of attitudes that depicted people as generally honest and warm, and obligated him to behave in kind. A subsequent series of unpleasant experiences with others might jar these beliefs and cause him to change his attitudes toward others (i.e., to question his previous moral standards about kindness to others). In general, changes in moral standards based on identification and the search for internal consistency are apt to be more permanent than those based on compliance to a peer or adult in order to avoid rejection.

As a general rule, adolescents tend to maintain standards somewhat similar to those of their parents and similar to those they held during childhood. For example, in a study of almost 10,000 young people it was found that 81 percent of those who had some church affiliation had

adopted the faith of both their parents, whether Protestant, Catholic, or Jewish. Only a small percentage adopted a faith different from that of either parent (3).

Nevertheless, many adolescents do encounter anxiety with respect to their moral standards. It will be our purpose here, first, to examine the general developmental basis for adolescent conflicts with regard to moral standards, and then, to survey the factors which are likely to precipitate these conflicts in adolescence.

Conscience in the Adolescent

We have already reviewed, in some detail, the gradual emergence of a conscience in the child. It seems worthwhile, however, to review this process briefly here. As we noted, the very young child does not possess complex adult notions of right and wrong. He simply "wants what he wants," and he wants it now, regardless of ethical or even practical considerations. As development proceeds, however, impulsive behavior becomes modified through experience. The child begins to learn that he cannot always have what he wants at any particular moment. Some things he can never have. He learns that certain of his responses will be rewarded, while others will be punished. In brief, he learns which behaviors are socially appropriate and which are inappropriate.

This does not mean, however, that during the early years he is guided by a "conscience" or "superego." It is true that the child may learn to inhibit responses which his parents refer to as "wrong" or "bad." But he is likely to inhibit them less because of guilt than because of expediency. He may avoid hitting his baby brother or knocking over lamps; but he is likely to do so not so much because he would feel guilty, but rather because he fears being spanked.

As he grows older, however, all this changes. The responses which previously were inhibited, primarily because they led to punishment, are now avoided because they lead to increased anxiety. The values of the environment have been internalized and have become the youth's own values. An internal policeman, called conscience or superego, has been substituted for the cop on the corner. In other words, the thought of carrying out a tabooed response now leads to anxiety without any need for external reinforcement. As a result, the child now inhibits certain responses, not to avoid external punishment, but simply to avoid increases in his own anxiety and guilt.

By the time the American child reaches adolescence, his conscience has had a good many years in which to develop. Guilt has become associated with a great number of responses. As long as he can continue to

avoid making such responses, all is reasonably well. But when incompatible motives are aroused—motives which can be reduced only by making responses previously associated with increases in guilt—then conflict and tension must inevitably result. For example, a child may have learned to associate guilt with sexual responses. As long as the child's sexual needs are not too strong, little conflict may result, since the child may simply avoid these responses. However, with increases in sex needs at puberty, strong conflicts may be precipitated, since the responses which are necessary to gratify sexual needs will also lead to increases in guilt. The adolescent would encounter minimal emotional strain if the society consistently demanded that certain responses be carried out, and always rewarded them; and also that certain other responses *not* be carried out, and always punished them. Unfortunately, our society is not nearly so consistent. In many cases, as we have repeatedly seen, it demands that responses, such as competition, simultaneously be carried out and avoided. Or it insists that responses not be carried out at one stage of the individual's life, but that they be performed enthusiastically at a later stage (e.g., independence responses, sexual behavior). In general, we would expect that adolescents who encounter the fewest contradictory demands from their environment would have the least conflict over behavior involving moral standards.

Differences Between Parents and Peer Groups

There are, of course, a number of sources of conflicting pressures on the adolescent. For one thing, the standards of the child's parents and those of his peers may be in conflict. Such discrepancies may have a variety of origins. As we have already pointed out, parents may attempt to make the adolescent conform to the kinds of behavior which were expected of them in their own youth, but which are no longer characteristic of the culture. To illustrate, approved patterns of social relationships between boys and girls have changed markedly in the last 25 years. So have attitudes towards many kinds of feminine behavior, such as working, traveling alone, and smoking—especially in the middle-class. The parent who attempts to make his children conform to the social norms of a previous generation is bound to precipitate conflicts in the adolescent, since his peers will have different expectations of him.

Furthermore, if the social-class allegiances of the adolescent's parents are different from those of his peers, strong conflicts between a whole host of social attitudes may be precipitated in the adolescent. When forced to choose between parental and peer values, the adolescent may decide in favor of the peer group, since he is more dependent on them

for satisfaction of his needs. Of course, such a choice will produce emotional strain, not only because of the necessity of choosing between conflicting loyalties, but often also because the youth may have to become aware that he is relinquishing the comfort of dependence on his parents. He may also become more aware that his behavior is being determined by a rather crude sort of expediency aimed at peer-group acceptance. Since many adolescents are idealistic and perfectionistic in their goals for themselves, this latter sort of awareness may be difficult to tolerate.

In most cases, however, the adolescent will associate primarily with peers of his parents' (and his own) social class. In this case, the consistencies of parental and peer-group attitudes may be expected to help keep parent-child differences in viewpoint to a minimum. In fact it is largely because of these consistencies that most adolescents do not make major shifts in their general moral beliefs even when their primary loyalties are shifted from the parents to the peer group. In other words, the same general moral beliefs and behavior tend to be rewarded both by parents and by peers.

Finally, it should be noted that parent-child conflicts may develop even where they are not associated with such broad sociological conditions as age or social-class differences, as a result of idiosyncrasies in the parent's or the child's personality and behavior. Thus the adolescent whose parents cling to restrictive notions with regard to dating, or other forms of social activity when other parents are displaying a more liberal attitude is placed in a difficult position. Not only is he led to doubt the rightness of his parents' views; but he is also likely to bear them many hard feelings for the restrictions they impose upon him. Furthermore, when this resentment is personally unacceptable to the child, he may have to hide his resentment even from himself and may undergo considerable emotional strain.

The child whose parents possess religious beliefs deviant from those of his subgroups faces similar problems. The child whose parents are Catholic and who comes into contact primarily with other Catholic adults and peer-group members is not given much impetus for reconsidering his Catholic religious beliefs. The same cannot be said of a Catholic or Orthodox Jew, growing up in a Protestant community, or going to a public school or college where most of his peers are Protestants.

Traditional Problems of Adolescents and Shifting Moral Standards

There are, as we have seen in our discussion of sexual behavior, considerable differences in the moral beliefs and behavior expected of the

child at different ages. In our discussion of psychosexual development, we stressed the difficulty the child may have in eliminating old responses in order to establish new and markedly different responses necessary for meeting changes in the expectations of the adult culture. Such developmental inconsistencies do not occur only in the area of sexual behavior, however; they occur also in many other areas. A child may be expected, for example, to believe in Santa Claus, in the code of doing unto others as he would have others do unto him. He is expected to believe in a personal God. He may often be taught that it is wrong to be aggressive, to compete, to question authority, to play cards, to smoke, to swear, and to lie. And yet when the same child grows up, he is often expected suddenly to change and to be sexually responsive; "one of the boys" with respect to smoking, swearing, card playing, and similar activities; not to be too "naïve" in his religious beliefs; and "when necessary," to be aggressive and competitive regardless of the consequences to others, and even at times to lie and cheat a bit. Having once adopted at face value the parable of the Good Samaritan, he is faced with the task of renouncing this belief with the newer dictum that "business is business." Where previously he was exhorted to be an idealist, he is now exhorted with equal vigor to be "practical." Hence the adolescent may at times have difficulty in adjusting to such shifting standards.

The above represent simply some of the sources of conflicting demands which may confront the adolescent with regard to moral standards and behavior. There are, of course, others, such as conflicts between the standards of society as a whole and those of particular cultural subgroups or institutions, and between these various subelements of the society themselves. Thus there may occur conflicts between church and state; between racial and religious groups; or between geographical regions, such as New England and the deep South.

Changes in Religious Beliefs During Adolescence

Religious beliefs tend to become more abstract and less literal between the ages of 12 and 18 (25). For example, God comes to be seen more frequently as an abstract power than as a fatherly human being. Religious views also become more tolerant and less dogmatic (25).

In an attempt to determine the nature of changes in religious beliefs during adolescence, one team of investigators prepared a list of 70 statements dealing with religious issues, and asked a group of 547 12-, 15-, and 18-year-old students to indicate, for each statement, whether they believed it, didn't believe it, or wondered about it (25). The results

indicate that many adolescents change at least some aspects of their religious beliefs. For example, the percentage of adolescents believing that "only good people go to heaven" or "every word in the Bible is true" decreases with age.

Various studies reveal that according to adolescents themselves the most important influences producing changes in their religious beliefs are: teachers, peer-group contacts, individual reading, ministers, various organizations, such as YMCA (22), personal experiences, such as the loss of a relative or close friend or seeing injustice done, and contact with other faiths or creeds (22).

How disturbing to the adolescent are these changing values? It is not possible to say with any certainty, but various studies (22, 26) seem to indicate that only a minority of adolescents see the experience of change as seriously disturbing. In one study of college students, for example, only about 7 percent of the students said that they felt that changes in religious belief had taken away something of vital importance and had left nothing but doubt and anxiety about the problems of life (22).

Thus, while some adolescents undergo considerable personal stress as a result of conflicting pressures with regard to religious belief, most adolescents do not seem to undergo any profound disillusionment. As we noted earlier, the majority of adolescents "belong to a church, usually the same church as their parents, attend church service once a month or more, have a favorable attitude toward the church, rely upon prayer, and believe in a personal, omnipotent, omniscient God, who, although bodyless, participated in the writing of the Bible and guided the affairs of men and nations" (1a).

General Changes in Standards in Adolescence

As in the case of religious beliefs, the rigidity of moral standards appears to decrease during adolescence. Expediency comes to play a greater part in determining moral conduct and beliefs, and there tends to be somewhat less moral absolutism and less "naïveté, more tolerance of deviation from the ideal, and a more abstract approach to moral questions as maturity approaches. A number of studies illustrate these points. For example, Stone and Barker (40) found that, compared with premenarchial girls, postmenarchial girls exhibited more tolerance of such things as smoking, playing cards, dancing, playing hookey, anger, fussiness, and quarreling. Several investigations (13, 44) have found a rapid increase in the frequency of lying as adolescence progresses. There is also a decrease in superstition as a basis for moral beliefs (5, 7, 27, 45).

While ethnic prejudices are already well formed in most cases by the time of adolescence, the reasons given for prejudice become more sophisticated and more skillfully rationalized with increasing age (1a, 30).

Havighurst and Taba (13) investigated the moral standards of 16-year-olds in Prairie City, a typical small city in the Middle West. Using questionnaires and personal interviews, they attempted to study the ideas of these adolescents with regard to honesty, responsibility, strength of conviction, loyalty, and friendliness.

These students seemed to be most certain of the need for being honest and responsible, which they interpreted largely in terms of following correct rules of accepted conduct. They also tended to place a good deal of value on the need for being friendly and accommodating to all people. For example, 75 percent of the students believed in "not saying unkind things, taking time to cheer up unhappy persons, and making strangers feel at home at a party, and in having many friends" (39).

These adolescents were most confused when it came to their beliefs about loyalty. They seemed particularly uncertain about issues involving conflict of several loyalties, or conflict of loyalty with other values, such as defending the family against criticism or dropping a friendship if one's reputation is in danger.

With respect to personal convictions, it was found that doubt and anxiety tended to be expressed about any opinions or actions which were likely to arouse the displeasure of authority figures or to jeopardize the adolescent's popularity with his peers. These adolescents tended to avoid criticizing peers, even if they felt them to be wrong, for fear of rejection.

The authors also cite a number of general characteristics which they regard as common to these adolescents' beliefs. Among these they include accepting familiar stereotypes: "High agreement usually occurs on statements which express the obvious middle-class codes of conduct in stereotyped language requiring little thought or analysis" (13). Inconsistencies appear, however, where these general values are tested in specific situations.

Adolescents seemed to fear and avoid peers holding beliefs in any way deviant from those of the group, even when they felt that they were right. In other words, desires to be accepted by peers frequently triumphed over moral conviction.

A third characteristic was that of evading a conflict of moral choices whenever possible. For example, there was hesitancy in taking positions when conflicting loyalties (e.g., between family and friends) were in-

volved. These adolescents felt most sure of beliefs on which families, teachers, and friends were in agreement.

Social-Class Differences in Moral Standards

Since overt expression of aggression, sexuality, dependency, and mastery behavior are related to the social-class background of the individual, we might expect that degree of guilt and severity of standards in these areas would also bear a relation to social-class membership. In an extensive investigation of the moral standards of adolescents, Miller and Swanson conducted several experiments with large groups of middle- and working-class boys from Grades 7 through 9 (32).

In one of these studies, lower- and middle-class boys were asked to write endings to some stories involving aggressive feelings. For example, one story describes a boy named Paul who has always hero-worshipped his father and loved his mother very much. But his father died two years ago, and Paul's mother has married a man Paul has always hated. At this point, the boy was asked to write an ending to the story.

After these stories were completed, the examiner attempted to make the boy angry by telling him that the mothers he had interviewed generally said many negative things about their sons. Following this communication, the boys completed a different set of stories. Both sets of stories, however, were designed to measure angry feelings on the part of the adolescent boy.

In the second set of stories, the middle-class boys in the study showed increases in the tendency to inhibit or minimize the anger or aggression of the boy in the story. That is, the middle-class boys would not attribute anger or aggressive behavior to a boy in a story who was placed in a disappointing or frustrating situation. The lower-class boys showed no such tendency, and their completions of this second set of stories contained many references to anger and aggressive behavior.

The authors assumed that telling the boys that their mothers had said negative things about them made both middle- and lower-class boys angry. Middle-class boys, presumably, were more likely than lower-class boys to experience guilt as a result of anger, and this guilt led to inhibition of aggression in the story completions. Middle-class boys seemed more vulnerable to guilt arousal and were likely to react with defenses designed to inhibit or modify aggressive feelings. Moreover, lower-class boys generally told stories that contained direct aggression (attack, murder, violence). Middle-class boys usually told stories that contained indirect forms of aggression (i.e., verbal sarcasm). Sociometric measures,

designed to find out how the child's behavior was viewed by his class-mate, showed that working-class boys were considered verbally more aggressive toward the teacher than middle-class boys. In summary, lower-class boys appeared to be less guilty over their angry feelings; told more directly aggressive stories, and behaved more aggressively in the school setting—all indices of less intense anxiety over aggressive motives and behavior (32).

There are also striking social-class differences in values not directly related to aggression. In a study mentioned earlier (see Chapter 11), 200 middle-class and 200 working-class mothers of fifth-grade children were presented with a list of 17 traits and asked to select the three traits they regarded as most desirable in a fifth-grader (24). While honesty was the attribute viewed as most desirable by mothers in both classes, middle-class mothers placed much greater emphasis on self-control, consideration for others, and curiosity about the world. In contrast, working-class mothers placed greater value on obedience to parents, neatness, and cleanliness. The author concluded that the middle-class family, in contrast to the working-class, placed greater value on internal standards of conduct rather than fear of authority as a force in socialization.

The child is to act appropriately, not because his parents tell him to, but because he wants to. Not conformity to authority, but inner-control; not because you're told to but because you take the other person into consideration—these are the middle-class ideal.

These values place responsibility directly upon the individual. He cannot rely upon authority, nor can he simply conform to what is presented to him as proper. He should be impelled to come to his own understanding of the situation (24, 350).

In summary, the greater emphasis of middle-class parents on inner-self-control, in contrast to conformity to external authority, is apt to lead to more guilt over aggression and greater inhibition of asocial behavior in children of this class than of the lower-class.

Sex Differences in Moral Values

Throughout this book we have emphasized that boys and girls are encouraged to adopt different values and motives. Boys are expected to be independent, retaliatory, self-sufficient, and concerned with mastery of problems; they should develop inner strength, and a reliance on their own resources in times of crisis. Girls, on the other hand, are expected to be more dependent and submissive, and to avoid vocations and activities that demand intense concentration, competition, and achieve-

ment strivings. Girls are encouraged to value beauty and social skills—attributes that involve gaining the acceptance of others. The girl's self-esteem tends to be dependent on the responses of other people toward her (i.e., regarding her as pretty, sociable, etc.). The boy's self-esteem, on the other hand, is more likely to be based on his evaluation of how capable he is in dealing with environmental threats or problems.

We have seen that the mothers of preadolescent children have different expectancies for their sons and daughters. Both middle- and working-class mothers emphasized good grades, dependability, and ambition (i.e., traits dealing with inner strength and competence) for fifth-grade boys; whereas manners, popularity with peers, and neatness (all of which emphasize social respectability) were viewed as most important for girls (24). For these reasons we should expect appreciable sex differences in major moral standards.

Such differences in moral standards were clearly demonstrated in a study in which 223 young adolescents were asked to judge descriptions of 60 adolescent behaviors with respect to their appropriateness and importance (33). The girls, in contrast to the boys, placed a greater importance on inhibition of anger and aggression in public, consideration for the feelings of other people, kindness, inhibition of romantic activity in public, courtesy, and neatness.

The boys placed a greater emphasis on providing interesting topics for discussion, finishing tasks quickly and efficiently, ability to solve problems, knowledge of the world, and perseverance. The boys generally placed a high value on intellectual competence and mastery of skills, while the girls were primarily concerned with maintaining friendly relations with others and inhibiting behavior that might elicit social disapproval. The girls appeared to be concerned with acceptance by others; the boys with developing skills to deal with environmental problems.

These contrasting values are the product of more than a decade of differential environmental training and choice of different role models for identification—the result of complex patterns of rewards and punishments from parents, peers, teachers, and contact with the content of movies, television, and books. The popular acknowledgment that men and women are “so different in temperament” is, in part, a reflection of these differences in inner values.

EGO IDENTITY

Many adolescents are deeply concerned with the answers to such questions as “What am I? What are my skills, my values, my weaknesses, my

goals in life?" As noted in Chapter 13, this problem has been discussed by Erik Erikson who feels that these questions relate to the problem of ego identity.

The person who can answer these questions clearly and positively possesses a strong sense of ego identity. He knows who he is and where he is going. On the other hand, an adolescent or adult who is unable to answer these questions, who has no consistent set of values and ideals, or who does not know where his skills and defects lie, has, in Erikson's view, a weak sense of ego identity. This concept is related, in many ways, to the concept of identification. A strong sense of ego identity can only emerge from a strong and positive identification with parents during the preschool and early school years. A strong sense of ego identity, however, is also the product of identification with relatives, siblings, teachers, coaches, and other hero figures.

Previous sections have dealt with sexual behavior, independence from family, vocational choice, and moral values. All of these are major issues that the adolescent must deal with and resolve in a rather limited time span. The 17-year-old boy who has achieved independence from his parents, has decided on a vocational direction, has established a system of values, has recognized his assets and liabilities, and has confidence in his ability to interact with the opposite sex has crystallized a firm concept of himself. He has discovered appropriate ways to behave in a variety of situations. He has a dependable psychological "map" to which he can refer when decisions have to be made about the conduct of his life. Such an adolescent will look to himself for support rather than to others. He will, in short, have achieved a mature ego identity.

On the other hand, the boy who has failed to acquire a sense of ego identity by this age inevitably faces tension and anxiety. He is not sure what vocational role to pursue, what values to hold, or how to behave with peers. He has no consistent set of principles to which he can refer in time of crisis and no internal guides for action.

Obviously, different sources of anxiety assume prominence during different developmental periods. At age 2, separation from the mother is often a major cause of panic in the child. At age 6, lack of adequate parental identification models is anxiety-arousing. During the middle-childhood and preadolescent years, anxiety over rejection by the peer group becomes prominent. At adolescence, failure to crystallize a firm sense of ego identity can lead to chronic anxiety and uneasiness.

What are the consequences of a poorly developed ego identity? Disturbances in interpersonal relations and the occurrence of psychological symptoms are common consequents of this developmental defect. It is

more than coincidental that juvenile delinquency has its highest incidence rate at ages 14 to 16, the years immediately following puberty. At this time the adolescent is neither child nor adult, and he is a marginal member of society. It is a time when the individual is seeking an identity, much as a cold and naked child desperately searches for cover and protection.

In this search for an identity, the adolescent girl has a unique advantage over the boy. The roles of wife and mother are typically available to her. She knows that she does not have to carve out a special role for herself since nature has provided her with a role and identity which society views as important and for which she needs no extensive technical training. The adolescent boy, on the other hand, has more difficulty establishing a well-defined identity. This difference may partially account for the fact that delinquency is more frequent in adolescent boys than in girls.

STABILITY OF ADOLESCENT BEHAVIOR

The motives, values, and ego identity of the adolescent usually persist into adulthood; hence, adolescent behavior provides a preview of what an individual will be like as an adult. With age, the potentiality for change in temperament, personal values, and motives seems to be reduced. Several studies have shown, for example, that highly spontaneous and extraverted adolescents remained socially uninhibited and full of vitality when they were young adults. Adolescents who found social interaction easy and gratifying became outgoing adults who enjoyed meeting new people. Those who were socially withdrawn or tense as adolescents remained shy and anxious with people during the college years and as adults (21, 43). The withdrawn adolescent boys tended to avoid clubs and organizations as adults because these situations involved interaction with others.

Aggression was another behavior that was found to be stable from adolescence through adulthood. Adolescent boys who were irritable, prone to tantrums, and sarcastic typically retained this predisposition into adulthood, and were easily frustrated and quick to anger (21, 43).

As noted earlier, frequency of sexual behavior and degree of independent and dependent behavior were also relatively stable from early adolescence through the early adult years. However, there was minimal stability for those behaviors that deviated from social norms. Thus, dependent behavior in men and aggressive behavior in women, both of

which are disapproved by the culture, showed minimal stability from adolescence to adulthood. That is, girls who were aggressive as adolescents were not necessarily aggressive adults because society discourages aggressive behavior in females. Similarly, dependent adolescent boys were not necessarily dependent as adults because of cultural pressures against this behavior in men. However, those adolescent behaviors that are not subject to strong social punishment are often a good index of behavior 10 to 15 years later. Thus, striving for intellectual competence and mastery behaviors, which are not discouraged for middle-class children of either sex, are highly stable from the early high-school years through college and early adulthood. The reader should recognize that this generalization is most applicable to adolescents whose behavior falls within normal limits. For adolescents who show an extreme or pathologically strong predisposition toward dependency, aggression, or mastery, ordinary cultural pressures may be less effective in changing these response tendencies.

Since adolescence often furnishes an accurate preview of the adult's personality, it is important to understand more fully the types of personality disorders that occur during this period. In many cases, these personality problems persist into adult life. One of the most serious and socially relevant disorders of adolescence is juvenile delinquency. A detailed consideration of the development of this behavior demonstrates that it is influenced by both social class and intrafamilial experiences.

JUVENILE DELINQUENCY

Despite the great attention it is receiving today, juvenile delinquency is not a new social phenomenon—although there can be little doubt that certain forms of delinquency are aggravated by current changes in the structure of society. But delinquency of one sort or another has always been with us. As Adelaide Johnson, a prominent psychiatrist who has been concerned with the problem, notes: "John Locke, the great English educator, three-hundred years ago deplored delinquency in much the same vein as we do today. Six-thousand years ago, an Egyptian priest carved on a stone, 'our earth is degenerate. . . . Children no longer obey their parents'" (19, 840).

Juvenile delinquency is basically a legal concept, defined in different ways in different times and places. In our culture, the term *juvenile delinquent* is generally applied to children under 16 or 18 who exhibit behavior which is punishable by law. Although most delinquents are

adolescents when they come to the attention of the authorities, they generally begin their illegal activities during middle childhood. About 60 percent commit their first offense before they are 10 years old (9, 10, 11).

There are striking sex differences in the incidence of recorded delinquency. Typically, the ratio of boy to girl offenses is 4 or 5 to 1. The most frequent delinquent acts for boys involve active or aggressive behaviors, such as joy-riding, burglary, malicious mischief, larceny and auto-theft. Girls, on the other hand, are more likely to become involved in such offenses as running away from home and illicit sexual behavior. It is also interesting to note that, according to juvenile authorities, boys are usually apprehended by the police. Girls, on the other hand, are frequently reported to the court by parents (particularly the mother), who assert that they cannot control the girl's behavior (6).

Most forms of delinquency may be viewed as resulting from a failure to acquire socially acceptable responses; a failure to learn the moral and ethical standards of the child's culture. In some instances, the failure may be related to unique problems in a child's psychological development which prevent him from becoming properly socialized or developing an adequate superego. In other instances, failure to adopt generally accepted standards may have other sources. For example, the child may come from a subcultural group which condones certain behaviors that the broader community considers delinquent. Thus, if a child is in a slum area where gang warfare and petty theft are accepted or even encouraged by peers, he may readily adopt these practices. The problem of determining appropriate treatment methods depends in great measure on the nature of the etiological factors which contribute to an individual youth's delinquency. This problem will be considered in greater detail, following an examination of the social and psychological variables which are related to delinquency.

General Environmental Factors

Ecological studies (analyses of the spatial distribution of social phenomena) (10, 11, 37, 38) have made it clear that delinquency rates vary from one part of a city to another. The largest number of offenders come from deteriorated neighborhoods, near the center of the city, which are adjacent to business and heavy industry and are characterized by economic privation, rapid population turnover, and general social disorganization. In these areas, delinquency is often an approved tradition, and there are many opportunities for learning antisocial behavior from delinquent peers. An overwhelming majority of 1,000 male offenders, studied

at the Boston Juvenile Court, associated with undesirable companions, ran around the street, and had no affiliation with socially approved organizations such as Boy Scouts, settlement houses, or boys' clubs (11).

In one study, a high delinquency area was compared with one where the delinquency rate was low (28), but both areas were in the same city and of similar social-class composition. The low delinquency area was much more homogeneous with respect to the religious and ethnic background of its members than the high delinquency area. Moreover, the people in the high delinquency area knew fewer neighbors by name and were more likely to dislike the neighborhood. Neighborhoods such as these are less likely to initiate constructive activities for adolescent groups; thus they increase the probability of asocial gangs forming (28).

Many delinquents come from broken or economically substandard homes. Moreover, delinquency is about twice as frequent among the children of immigrants as among those of native-born parents. In the case of native-born minority groups, such as Negroes and Spanish-Americans, it is more frequent among the children of parents moving from a relatively simple rural environment to crowded cities than among children of parents already long established in the city environment. Children of immigrant or geographically motile parents may experience a great deal of conflict produced by the contrasting standards of their homes, on the one hand, and the neighborhood and school, on the other. Moreover, the prestige of these children and their parents in the community may be relatively low. In addition, the families are more likely to live in deteriorated neighborhoods; thus the children are more likely to be exposed to delinquent practices. Finally, the parents may themselves lack the knowledge and skills necessary to deal successfully with their environment; hence they may serve as inadequate role models for their children, and because of being too preoccupied or defeated by their own problems, may fail to give their children adequate attention as well.

The problem presented by such general environmental factors is particularly acute in the ethnically segregated, economically deteriorated areas of a few large cities—New York, for example. It is in areas like these that delinquency is most likely to take the form of gang misdemeanors, rather than individual offenses. Current headlines about gang warfare and the more brutal and apparently senseless juvenile crimes, such as "thrill-killing," come most frequently from such areas.

In these locales, many youths are almost forced, not only by a lack of more attractive alternative activities, but by social pressures from the peer group, to engage in gang behavior. At times, in fact, gang membership may be almost a condition for self-preservation.

Harrison Salisbury, a correspondent for *The New York Times*, comments on this latter problem in his investigation of youth gangs in Brooklyn (36). He notes that even though an adolescent in a gang area may at times avoid gang membership by paying tribute to the gang leader, or simply by being an outstanding boy in the neighborhood, this does not often happen:

Much more frequent is the youngster who is 'drafted' into the gang . . . Smokey, leader of the Cobras [a predominantly Negro gang] frankly admits that the draft is the only way in which he can maintain his order of battle at full strength. 'There has to be a draft,' he says. 'There does not seem to be any real place in the world for the coolie [a boy who does not belong to a gang].'

Application of the draft is very simple. A recruiting squad of three or four boys approaches a coolie.

"Do you want to join the club or do you want a punch in the belly?" they ask. Sometimes, they knock the boy down first and then ask him just to show they mean business. Few boys refuse to join. If a draftee tries to duck a rumble [war between rival gangs] he is likely to earn new beatings for punking out. Sometimes the beating is inflicted by a formal punishment squad of half-a-dozen boys. They make the offender run a gauntlet while they beat him savagely with brass-studded garrison belts or baseball bats. The next time he goes along on the rumble.

The Cobras have never kicked a member out of the gang although boys have been punished for desertion. It is rare for a boy to be expelled but it sometimes happens when a boy's conduct is so irrational that he repeatedly endangers his fellow members. But since all of the gang are shook-up or disturbed they tolerate much before moving against a comrade. If a boy is found club hopping (changing sides) or cheesy (guilty of treason) he is in danger of death. If the gang gets its hands on such a boy it will beat him to death or come close to it (36, 29-30).

The function of the gang, in turn, is seen by the group as providing a social life for its members and protection for them, particularly in their own territory, or "turf":

When I asked a Cobra the purpose of his organization he told me that it is a social club made up of friends and good fellows. 'We are,' he said, 'all for one and one for all.' In case of danger the club provides protection and self-defense.

Protection against what? Protection of the Cobra members and their turf against any threat from the outside. The Cobra does not regard himself as a menace to anyone. But the world seems to him to be filled with menace. There is only one small island of comparative safety—his turf. On his own turf, and in the presence of his own comrades he feels relatively, but only relatively, secure. Twenty-two-year-old Trigger now lives an hour's subway ride from [his old gang]. But he comes down almost every night to be with the gang. 'Man, I just don't feel safe up there in the Bronx,' he says (36, 23).

In less severely deprived areas, or in smaller cities and towns, group pressures toward delinquency are usually less extreme, and other social and psychological factors may play a correspondingly greater role. Even in severe delinquency areas, however, such other factors are frequently involved to an important degree, as we shall see later.

Intelligence of Delinquents

Although there is a somewhat larger proportion of mentally deficient children among juvenile delinquents than among the population at large, there is a wide range of intelligence in the delinquent group. A comparison of the Stanford-Binet Intelligence Test scores of 500 juvenile delinquents and a representative sample of 3,000 children showed similar distributions for the two groups, although the average IQ of the delinquents was 92.5 as compared with 101.8 for the nondelinquents (31). Other investigators report similar results (6). The average difference in intelligence between the two groups is not large, and there is a great deal of overlap between the delinquent and nondelinquent groups. Thus, low intelligence, in and of itself, cannot be considered a major factor in determining most cases of delinquency.

Constitutional Factors in Delinquency

Some investigators believe that the physique of the adolescent predisposes him to delinquency. There seems to be a higher proportion of well-proportioned and highly muscular boys (mesomorphs) in the delinquent groups than we would expect by chance. Short, chubby boys (endomorphs) and tall, thin boys (ectomorphs) are less apt to become delinquents (4, 12).

It is not likely that physique is a direct cause of delinquency. However, mesomorphic, muscular boys are apt to be more proficient at the masculine skills of boxing and athletics. These boys may be more likely, therefore, to be accepted by the "gangs" that typically value traditional masculine skills. It may also be that mesomorphic boys are more active generally, and hence more likely to seek the types of outlets for their restless energy that gangs can provide. Since membership in such a gang increases the probability of being involved in delinquent behavior, the individual's physique may play a predisposing role.

Personality and Delinquency

Any of the above factors—poverty, poor neighborhoods, foreign-born parents, low intelligence, or physique—may be related to a particular

child's delinquency, but no single variable can be interpreted as a sufficient antecedent condition for delinquent behavior. For only a fraction of the total number of children who are mentally retarded, or reside in high-delinquency areas, or experience broken or economically impoverished homes actually *become* delinquent.

Comparisons between delinquents and nondelinquents who come from the same general social backgrounds have been considered by many investigators as the best approach to understanding the personal motivations underlying delinquent behavior. Basically, we are concerned with discovering how the individual's unique developmental history and personality are related to "the way in which [he] will be influenced by social disorganization, culture conflict, and the growing-pains of the city" (12, 6).

In their classic study of the personality structures and motivations of delinquents, Healy and Bronner (14) obtained extensive case history data on 105 juvenile offenders by means of psychiatric, psychological, and social-work interviews. Each of the subjects had a nondelinquent brother or sister near his own age who served as a control and was studied in the same way.

Despite the fact that they had the same parents and came from the same family backgrounds and environmental surroundings, delinquents and controls differed markedly in their personality characteristics, attitudes, and interpersonal relationships. More delinquents than controls manifested neurotic tendencies and symptoms indicative of anxiety and tension—food and sleep idiosyncrasies, excessive nailbiting, thumbsucking, excessive masturbation, excessive smoking. Fewer of them were judged to have "normal emotional control," and most of them expressed strong antipathy for school. Their academic records were inferior to their brothers' and sisters', and they felt they were unpopular with schoolmates (14).

The most striking difference between the two groups, however, involved "familial attitudes and emotional experiences." The investigators were "tremendously impressed by the prevalence of profoundly felt emotional disturbances among the delinquents. These disturbances indubitably played a large part in the origin and growth of their delinquent tendencies" (14, 121).

It finally appears that no less than 91 per cent of the delinquents [96 cases] gave clear evidence of being or having been very unhappy and discontented in their life circumstances or extremely disturbed because of emotion-provoking situations or experiences. In great contra-distinction we found similar evidences of inner stresses at the most in only 13 per cent of the controls (14, 122).

Healy and Bronner list the following as the major types of emotional disturbances in the delinquent group. Many subjects showed more than one type of disturbance.

1. Keen feeling of being rejected, deprived, insecure, not understood in affectional relationships, unloved, or feeling that love has been withdrawn.

2. Deep feeling of being thwarted other than affectionately in (a) normal impulses or desires for self-expression or other self-satisfactions, (b) unusual desires because earlier spoiled, or (c) adolescent urges and desires—even when (as in five cases) desire for emancipation had been blocked only by the individual's counteractive pleasure in remaining childishly attached.

3. Feeling strongly either real or fancied inadequacies or inferiorities in the home life, in school, or in relation to companionship or to sports.

4. Intense feelings of discomfort about family disharmonies, parental misconduct, the conditions of family life, or parental errors in management and discipline.

5. Bitter feelings of jealousy toward one or more siblings, or feelings of being markedly discriminated against because another in the family circle appears to be more favored.

6. Feelings of confused unhappiness due to some deep-seated, often repressed, internal mental conflict—expressed in various kinds of delinquent acts which often are seemingly unreasonable.

7. Conscious or unconscious sense of guilt about earlier delinquencies or about behavior which technically was not delinquency; the guilt sense directly or indirectly activating delinquency through the individual's feeling of the need of punishment (in nearly every instance this overlaps with the last category) (14, 128).

There were only nine delinquents who gave no strong evidence of emotional maladjustment. In these cases,

... there were various factors playing a part in the drama of causation—mainly social pressures deriving from poverty, poor family standards, lack of supervision, ideas of delinquency received from companions, etc.—with very little to counterbalance on the positive or constructive side (14, 129).

There were also 14 controls

... who evidently had experienced some considerable degree of emotional discomfort, but in every instance, they were able to find counterbalancing satisfactions. Either they found some other affectional relationship which sub-

stituted for the one barred to them, or their feeling of inadequacy in some direction was compensated by a satisfactory achievement in other ways, or distress about a family situation was made more tolerable for them by active allegiance to one of the parents. It might be thought that the delinquents also had opportunities for achieving satisfactions to offset emotional stress, but the ascertainable fact was that either circumstances totally prevented compensatory adjustments or that the established reactive tendencies of the delinquent individual or of others in the family circle did not permit satisfying emotional responses (14, 130).

The presence in this study of a number of emotionally stable delinquents and highly disturbed controls again emphasizes that no single factor can be interpreted as *the* explanation of delinquency.

Parent-Child Relationships

Another extensive delinquency study made use of a staff representing several disciplines—psychologists, psychiatrists, sociologists, anthropologist, and social workers (11). These workers made detailed examinations of 500 delinquent boys “most of whom had court records reflecting persistent delinquency” and 500 control subjects matched in age, ethnic origins, intelligence (as measured by standard tests), and general socioeconomic background.

All the available data indicated that the nondelinquent controls were better handled by their parents. For instance, the early disciplinary techniques to which the delinquents had been subjected were typically lax and erratic (swinging from overstrictness to laxity without any consistency). Fathers of delinquents were more frequently overstrict while a smaller proportion of them were considered firm but kindly. Physical punishment was the favorite disciplinary method of delinquent boys’ parents, whereas the controls’ parents more frequently reasoned with the boy about his misconduct (11).

In general, the delinquents’ parents were less affectionate, more indifferent and hostile toward them, and correlatively, showed less warmth, sympathy, and affection. Compared with the control group, relatively few of the delinquents had close ties to their fathers, and more of them expressed open hostility toward both parents. Many of them felt that their fathers were wholly unacceptable as models for their conduct. Obviously, they must have found it difficult to identify with them or to learn acceptable patterns of social behavior from them.

The crucial role of disturbed family relations in the genesis and repetition of delinquency has been demonstrated in several recent studies. In one (46), the backgrounds of 427 girls who had been referred to the

police two or more times were compared with those of 655 girls who had only one police contact. The girls who were second offenders were more likely to report hostility to the mother and to have had mothers who spent less time with their daughters. In another well-controlled study of delinquency among boys (47), a broken home was found to be one of the best predictors of delinquent behavior.

In still another study (2), a group of 28 delinquent boys and an equal number of nondelinquent boys from the same social class and IQ range were contacted, and both the boys and their parents were interviewed and rated for a variety of psychological variables. The parents of the delinquents were more rejecting and less affectionate than the parents of the nondelinquents. According to the authors, the boys' relations with their fathers constituted a more important factor in development than their relationships with their mothers. The fathers of the delinquent boys were prone to ridicule them when they made a mistake, and there was an atmosphere of ill will between father and son. A hostile father-son relation presumably interferes with a sound identification with the father, and the boy is left with a weak sense of ego identity.

A hostile and nongratifying relation with the same-sex parent predisposes the child to develop a variety of maladaptive behaviors; delinquency is one form this maladaptive behavior can take.

Personality Characteristics, Social Class, and Intelligence

As we have already seen, a considerable number of studies have investigated the relationship between delinquency and variables such as social class, intelligence, and residence area. Many others have investigated the relationship of personality traits to delinquency within various populations.

It may well be, however, that personality characteristics which are related to delinquency in some intelligence and social-class subgroups may not be related in other subgroups. Thus, for example, traits which differentiate delinquents from nondelinquents in a high-IQ, socioeconomically favored subgroups may fail to be differentiating in a deprived subgroup of average intelligence.

In a recent, continuing study at the University of Colorado Medical School (20), there has been an attempt to determine whether personality traits may be differentially related to delinquency, depending on the intelligence and social-class status of the child. In order to test this hypotheses, the investigators used the entire tenth grade of all high schools in a large western city as subjects. Personality test data and teacher ratings

of behavior for all these subjects were available for various ages from kindergarten to the ninth grade. All youths in this population who became delinquent prior to age 18 were subsequently located through Juvenile Court records. Each delinquent youth was individually matched with a nondelinquent peer of the same age, sex, IQ, (within 10 points) socioeconomic status, residence area (frequently the same block), ethnic-group membership, educational background, and school environment (junior and senior high school).

Two matched groups, one of 384 boys and another of 170 girls were obtained. Each of these groups was then divided into six subgroups, comprising three levels of intelligence (below average, average, and above average) and two levels of socioeconomic status (deprived, nondeprived), with each subgroup containing an equal number of delinquents and matched nondelinquents. As a result, it became possible to determine not only whether there were over-all personality differences between delinquents and a matched group of nondelinquents in this population, but also whether there were variations from one subgroup to another in the personality characteristics distinguishing delinquents from nondelinquents. For example, are the personality characteristics which distinguish *average IQ—socioeconomically deprived* delinquents from nondelinquents the same as those which distinguish *above-average IQ—nondeprived* delinquents from nondelinquents? Results obtained to date indicate that it may be misleading to speak of differences between delinquents and nondelinquents without taking into account the intelligence and socioeconomic levels from which these youths come.

Findings for Boys

Over-all comparisons between delinquent and nondelinquent boys in this study yielded significant results similar to those of other studies in different parts of the nation. As a total group, these nondelinquent boys appeared to have achieved a better social and emotional adjustment than their delinquent peers. Nondelinquents were, according to psychological tests and teacher ratings, more stable emotionally and less likely to be troubled by feelings of inadequacy or by nervous manifestations, such as fingernail biting, fidgeting, dizziness, tremor, tightness in the chest, and so on. They appeared generally to be more mature in their behavior, more thoughtful and reflective, and more objective in their reactions to people and events.

Socially, they were more cooperative and friendly, and more tolerant of—as well as more respectful in their attitudes toward—other people and social institutions. They appeared to derive more satisfaction from both

schoolwork and recreational activities. In addition, they possessed clearer goals for the future, better developed value systems, and a more coherent and workable philosophy of life.

In contrast, the delinquents as a total group emerged as more interested in overt activity, less poised, more self-centered and hypersensitive, more belligerent and resentful of authority, more critical of other people and institutions, more suspicious of the motives of others, more eager to dominate others, and less likely to accept domination from others. Furthermore, they were more likely to acknowledge the presence of such symptoms of emotional instability as mood fluctuations, excessive day-dreaming, excitability, pessimism, and feelings of inadequacy, guilt, loneliness, or anxiety.

Interestingly, however, while the above rather marked differences distinguished delinquent and nondelinquent boys as a whole, these findings cannot be applied indiscriminately to all subgroups, regardless of their intellectual or socioeconomic status. For example, one of the measures used in attempting to differentiate delinquents from nondelinquents was a so-called D (delinquency) scale derived from an analysis of teacher comments about children over the grade period from kindergarten to ninth grade. The scale involved 47 sets of polar traits (e.g., calm vs. nervous; restless, aggressive vs. passive; good attention and concentration vs. distractable, poor attention) assumed to be related to delinquency status. It was predicted that a positive (+) over-all score on the D scale would be associated with the development of delinquency, while a negative (-) score would be associated with nondelinquency. For the total group of delinquent and nondelinquent boys this prediction was confirmed. Delinquent boys had higher D scores than their nondelinquent matches in a significant number of instances.

However, as Table 9 indicates, the picture varies considerably from one social-class IQ subgroup to another. Thus, among children of below average intelligence, both delinquents and nondelinquents obtained positive D scores. In contrast, among children of average intelligence, delinquents obtained positive D scores, while nondelinquents obtained negative D scores. Further, among children of above average intelligence, both delinquents and nondelinquents obtained negative D scores.

The importance of social class and intelligence can, perhaps, best be appreciated if we realize that below average IQ nondelinquents actually obtained *higher* average D scores than above average IQ delinquents. Furthermore, *within* one subgroup (below average IQ—deprived), the nondelinquents obtained a higher mean D score than the delinquents. In brief, the predictive value of a particular D score will depend heavily

TABLE 9. Mean D Scores for Boys (Grades K through 9) for Each Social Class—IQ Group

Social Class	Mean D Score	
	Delinquent	Nondelinquent
Below average IQ—nondeprived	+1.05	+ .50
Below average IQ—deprived	+1.22	+1.66
Average IQ—nondeprived	+ .88	- .61
Average IQ—deprived	+ .45	-1.42
Above average IQ—nondeprived	- .38	- .38
Total	+ .68	- .35

NOTE.—Too few above average IQ—deprived subjects were available to make comparisons meaningful.

upon the particular intelligence, social-class subgroup to which the subject belongs. In some cases, IQ and social-class standing were better predictors of type of adjustment and behavior than delinquent or non-delinquent status.

Findings for Girls

In general, delinquent girls appeared less well adjusted socially, emotionally, and academically than their nondelinquent matches. They displayed a significantly poorer sense of responsibility, often as early as the third grade. They clearly showed less regard for other persons, more antagonism to authority (e.g., teachers), and generally less acceptable social behavior. Their work habits were poorer, and they displayed a much narrower range of interests than their nondelinquent peers. In early adolescence, they had more difficulty in adjusting to their own and the opposite sex, were less poised, less well groomed, generally more unhappy and unfriendly, and less sure of what they wanted to do with their lives.

However, the danger of comparing delinquents and nondelinquents without taking into account the possible complicating effects of social-class status and intelligence was again shown in the findings for girls. For example, on a personality test measure of mental health problems, girls of higher socioeconomic and IQ status manifested fewer problems than others. Thus, nondeprived delinquents of above average IQ had fewer problems than deprived nondelinquents of average or below average IQ. Furthermore, while nondelinquents generally had fewer problems than delinquents, within the socioeconomically deprived—below average IQ subgroup, the delinquents actually manifested significantly fewer problems than the nondelinquents.

Obviously, much further research will be necessary before the complex interrelationships between delinquency status, social class, and intelligence will be fully explored and understood. Nevertheless, this study, which is still in progress, strongly suggests that personality differences between delinquents and nondelinquents should not be considered independent of these other variables. Furthermore, the prediction of delinquency in children will be estimated with substantially greater accuracy when the individual's intellectual level and socioeconomic status are taken into account.

ETIOLOGY OF DELINQUENT TYPES

While we know something about over-all differences in personality and environmental influences between groups of delinquents and nondelinquents, we still know much too little about the various types of children who are likely to become delinquent under particular conditions. We also know much too little about the relationships between personality patterns and environmental influences, on the one hand, and the forms delinquency is likely to take, on the other. Obviously, however, such offenses as aggravated assault and running away from home may have vastly different psychological meanings and, consequently, may be associated with different personality types.

With respect to the problem of delinquent types, a number of students of the problem have postulated several broadly distinguishable personality types among delinquents. Reiss (35), for example, has studied large groups of delinquent boys and has suggested that there are at least three basic personality types among male delinquents.

The *integrated delinquent* typically comes from a stable, lower-class family that resides in an area where the delinquency rate is high. This boy tends to identify with the dominant peer group. He is not unusually tense or anxious and he has adopted the asocial values of the delinquent group with whom he interacts. When he leaves the neighborhood in which he grew up, his delinquency is apt to disappear.

The *defective superego delinquent* also is likely to come from a lower-class neighborhood. However, unlike the integrated delinquent, this boy typically grew up in a very unstable family marked by divorce, desertion, alcoholism, and/or a consistent lack of nurturance. This boy tends to show very little guilt over his asocial behavior. He lacks a well-defined conscience and has no set of goals. There is a great deal of resentment toward the social environment and he expresses his anger through his delinquency.

The third type, the weak ego delinquent, is sometimes called the neurotic delinquent. He often comes from a middle-class home and neighborhood where asocial values have been punished. However, the home atmosphere was marked by hostility and lack of love, and this boy is seeking an outlet for the hostility he has developed toward his parents and the adult world in general. Unlike the first two types, this boy is apt to commit his delinquent acts alone rather than with a group.

The motives and personality structures of these three types of delinquents are different, and Reiss feels that the probability of reform and rehabilitation is poorest for the defective superego and weak ego adolescents.

In a related vein, Adelaide Johnson urges that a clear distinction be made between what she calls the "sociologic delinquent" on the one hand, and the "individual delinquent," on the other, although she acknowledges that the two categories may overlap. Briefly, she states that "What makes the sociologic delinquent group is that it is largely molded by community and home forces more or less *consciously* in opposition to the whole other social world" (19). An example is a youngster who grows up in a gypsy society where stealing from villagers is permissible:

Once having incorporated the values and images of his parents and his culture, this gypsy youngster would then not only be able to steal without conflict, but would steal as an activity of his sociological group. There would be no *conscious* pressure brought to bear on him when he stole. Nor would he have guilt about what he did. Stealing would be an easy and natural act. On the other hand, he might have a great deal of fear of reprisal and he might experience much reality-based anxiety in connection with his act. But it is important to realize that the conflict he experienced would be a conflict between himself and external reality, not between him and his own conscience (19, 852).

In contrast is the *individual delinquent* with whom psychiatrists (16, 17, 18, 20, 41, 42) have worked intensively within a psychoanalytic framework. This type of delinquent is seen as being immature and having a weak conscience. However, a common central feature in these cases is an *unconscious* fostering by the parents of defects of conscience and related distortions in the child's capacity to evaluate the environment realistically and correctly. Johnson says,

From the initial studies emerged the thesis that antisocial acting out in a child is unconsciously fostered and sanctioned by the parents, who vicariously achieve gratification of their own poorly integrated forbidden impulses through a child's acting out. In turn, the child's behavior stimulates the parents to added need for this gratification (19, 844).

In cases of parentally influenced delinquency, the child's delinquent acting out may stem from his *identification* with the parent and the adoption of asocial attitudes the parent communicates in subtle ways. In these cases, even a casual observer may infer from the entranced facial expression of a parent when she is describing a stealing episode in her child, a sexual misdemeanor, or a hostile attitude toward a teacher that the parent is achieving some pleasurable gratification from the child's asocial behavior. It does not seem surprising that the child may also recognize this tacit approval of his behavior.

As Johnson and others note, we still have much to learn about the etiology of delinquency and "time and great openmindedness" are necessary, together with much additional interdisciplinary research. We also need more research into the relationships between particular types of delinquency and particular delinquent personality patterns. As we have already mentioned, delinquency is a legal, rather than a psychological, term and includes many offenses in a particular culture which have little psychological similarity, either in terms of the motives in the child that they appeal to, or in terms of their meaning to the child. While this problem is currently being attacked (2, 6, 29), much more work is necessary before any definitive answers will become possible.

Treatment of Delinquency

In general, treatment of delinquency does not appear to have been highly successful (19, 29, 34). Although a basically normal child who commits an occasional minor delinquent act, or who gets into delinquent company, may respond to mild corrective measures by juvenile authorities or by his parents, or to somewhat more protracted work by probation officers, the emotionally disturbed or "hard-core" delinquent is more resistant to psychotherapy.

Traditional psychiatric approaches have been notably unsuccessful with many "hard-core" delinquents, particularly gang members in whom both sociologic and individual delinquency-producing forces are at work. For such youths, the idea of treatment is often essentially meaningless. They may not think that they have any problems; they are frequently suspicious of all adults, particularly those in authority, and cannot believe that any adult can be interested in them without having an ulterior motive. Furthermore, they do not think that such "squares" can understand them anyway.

Such progress as has been made with these delinquents has largely

been due to the activities of courageous and enterprising street-club workers who have gone out and met delinquents on their own grounds:

This means that instead of sitting in offices, clinics and settlement houses and waiting for youngsters to come and ask for help, the Youth Board (the club worker agency in New York City) goes out on to the street, finds the youngsters who are in trouble and are potential sources of trouble, and begins to work with them right in the neighborhood. The Youth Board worker goes to the street corner where the kids hang out and hangs out with them. He goes to the ice-cream parlor where they loaf and loafs with them. He learns about their life and often insoluble problems (36, 131-132).

On the basis of the trust which may slowly develop in this way, the Youth Board worker is frequently able to help these youngsters develop more constructive life plans. He may help to avert "rumbles" between rival gangs, provide counseling, find jobs, discourage dope peddling, and in innumerable other ways direct the youthful energies of these confused youngsters toward more constructive activities. While never approving antisocial activity, the street-club worker does not set himself up as a judge or censor.

While street-club workers have probably had more impact on gang delinquency than any other group, the effectiveness of this approach is still limited in the case of the more emotionally disturbed gang delinquents. At the same time, traditional psychiatric approaches have usually been of little help, partly because of the reluctance of the delinquents to enter psychiatric treatment.

One of the more ingenious and exciting attempts to approach this type of delinquent with a more intensive psychotherapeutic technique has recently been made by Charles Slack (39). Slack reasoned that the entire concept of the "doctor-patient" relationship was inappropriate in dealing with "unreachable" delinquents. As he says,

In some ways it seems as though the entire 'doctor-patient' relationship is inadequate . . . it takes years of conditioning, cultural processing and even interested study in the popular literature before the middle class child understands what the doctors can and cannot do. We cannot expect the lower class delinquent to respond to a treatment which begins only after a fairly realistic understanding of this situation develops" (39, 4).

Slack felt that a new approach based on a type of human transaction more familiar and understandable to the delinquent than the therapist-patient relationship was needed. He settled on what he calls the *experimenter-subject* relationship, which he views as belonging to the larger class of employer-employee relationships, and which he feels the delinquent can understand.

In this approach, the prospective candidate is contacted about the possibility of "working for us for a while" (usually one or two hours a day). He is told that the work will not be hard and that he can quit anytime he wants to, although, of course, he will cease to be paid if he does. Initially, the subject is encouraged to come to the laboratory at any time and for any reason. Only after the project is well under way is any regularity of attendance expected, or likely to be achieved.

In the first hour, the subject is told that the experimenter is trying to "learn about kids in the neighborhood" for some research he is doing, and that the subject, if he accepts the job, will be expected to talk about himself, to take tests, and so on. He is paid at the end of each session. In the initial sessions and throughout the treatment the subject is provided with comforts which one might usually associate with the home. Food such as fruit, tea and coffee, as well as cigarettes and candy are available, and the subject is urged to partake. At any time the subject may be given bonuses to get himself special articles of clothing, etc., or, as in one case, to help him send a package to his brother in reform school. The attempt is to create a nurturant atmosphere, which Slack feels is especially important for these deprived youngsters.

Gradually, as the sessions proceed, the subject comes to trust the businesslike, plain-talking, down-to-earth, nonjudgmental "experimenter." Ultimately, he may realize that he is coming to the sessions for the sake of the relationship itself, and not simply for the money. At this point, more or less conventional therapy was begun.

In summary, much still remains to be learned about the etiology of delinquency, although considerable progress has already been made. Probably even more urgent is the need for devising effective treatment methods. Through the efforts of ingenious and courageous workers like those described here, we can face the future of this urgent social problem with increased optimism. There is little doubt, however, that unless society itself makes some basic changes, both in its values and in its structure and functioning, only a limited amount of progress can be made. At present, the best way to prevent delinquency is through education of parents and early detection of children who show signs of a delinquent personality during the preadolescent and early adolescent years.

Case Material

In the adolescent and early adult personalities of Peter and Jack, we can see clearly the cumulative effects of the divergent psychological and social forces that operated on these two very different boys over the

years. We can see, too, the remarkable consistency in the unique patterns of behavior each boy displayed as he grew toward adulthood. In both boys, the embryonic manifestations of many of their behaviors were present, even in the preschool years.

Of course, not all children show such consistency. There is little doubt that in these particular cases, it was fostered by the consistency, over time, of the influences to which they were subjected, particularly those of the parents. Nevertheless, one cannot help but be impressed by the regularity with which personality development follows the principles of learning discussed in this book. Nor can one help but be impressed—and hopefully, perhaps, rather sobered—by the truth of the time-worn cliché, “as the twig is bent, so grows the tree”.

PETER B. It will be recalled that during the school years, Peter was closely tied to his parents and eager to please adult authorities. He was conscientious and was, of course, doing well in school. His teachers unanimously described him as a conforming and friendly child.

Peter's interests and activities still deviated markedly from the traditional masculine ego ideal, and he was not involved in competitive sports, roughhousing or gang behavior, or dating. When he was 10, he had decided to be a florist or a baker, but by age 15 he felt sure that he wanted to be a teacher.

During adolescence, Peter remained cautious in all problem situations, constantly weighing all the possible eventualities before making a decision and rarely quarreling or fighting. Peter dealt with the five problem areas of adolescence with differential success. He had decided on teaching as a vocation and felt moderately confident of his abilities in this area. He had a strict and well-defined set of moral standards that prohibited sexual and aggressive behavior and dictated unquestioning obedience to his family and adults. His desires for sexual activity were suppressed and he did no dating. Since he was still very dependent on his parents, the task of establishing independence from his family was a most troublesome problem.

At age 15, Peter was still dependent, timid, conforming, and effeminate in his interests. While he had established some degree of ego identity, there were several areas (such as dependence on family and sexual adequacy) that were colored with anxiety.

At age 21, Peter had not changed very much. He was frail of build and spoke in a soft and high-pitched voice. His face and physique made him appear much younger than his 21 years. When interviewed, he had difficulty elaborating many of his answers; he often meditated for several

minutes before answering, and there was a prevailing air of caution and insecurity in his manner.

Peter had decided to teach English at a high school. Although he was primarily interested in teaching at a college, he was afraid to begin there because he doubted his ability to handle college courses. As usual, Peter preferred to avoid the challenge of the more difficult job, even if it was more gratifying.

He admired all his high-school and college teachers and retained a dependent tie to them. He felt close to many of them "Because," he said, "they were all willing to help me." His major hobbies were painting and growing flowers; athletics and competitive activities were avoided as strongly as ever.

Peter did not want to marry until he was financially secure, and he had serious doubts about his ability to support a family. He felt tense and uncomfortable when with girls and he preferred not to date. Sexual behavior was still a source of fear and, in characteristic fashion, his preferred reaction to fear was withdrawal.

Peter had few friends and most of his leisure time was spent alone. Because he felt tense with strange people, he avoided clubs and social groups. If someone irritated Peter, he walked away, and he rarely insulted or became sarcastic with anyone.

With his parents he was close and conforming, and he enjoyed talking over his problems with them. Fearing a feeling of isolation from his family, Peter decided to attend a college close to his home.

On the brink of adulthood, his behavior was, in many ways, similar to the reactions he showed when he was 4 years old. Let us quote again from a description of his behavior at 3½ years.

Babyish in appearance—a big, baby stare, long curly eyelashes, and a rosebud mouth. He showed extreme caution and would back away from any situation that smacked of danger. When threatened he would shake his head, clasp his hands, and beg in a frantic tone, "No, no, no." His role with peers was a sedentary, passive, and shrinking one. He stayed out of the swirl of activities of the other children and seemed like a clam without a shell. . . . With the staff of the nursery school he was highly conforming and very dependent. He liked to help clean up, liked to wash, liked to take a nap, and often told others what to do in a rather pointed way. Signs of guilt were quite apparent and whenever he dirtied something, wet himself, or committed what he regarded as a violation, he became very tense and apprehensive; as if he felt that he had been a bad boy.

Peter's development is not typical, for this degree of consistency in personality is unusual. However, it demonstrates how stable the reactions

of dependency, passivity, and fear can be if the forces that determine personality development arrange themselves in this particular configuration.

JACK L. At age 10, Jack had identified with traditional masculine role models. By adolescence, he was a leader among his peers, competitive and mischievous. He had achieved some degree of independence from his family and was confident of his ability to establish a heterosexual relationship. However, Jack was plagued with two problems; poor school grades and anxiety over the possibility of not being "masculine." Over the years, his parents had stressed the importance of being independent and competitive, and had punished any display of the "childish" traits of dependency or loss of emotional control. Since all adolescents have some desire to behave childishly, Jack had to repress these urges. This struggle was a continuing source of tension.

Jack's resistance to school continued through preadolescence and adolescence. He still viewed "studiousness" as nonmasculine, and this attitude prevented the development of any strong motivation to master academic subjects. On the other hand, his interest in sports and other masculine activities intensified, and at 20 he was saving all his money to buy a car. He had developed into a good athlete who was proud of his ability.

Jack began to date early in high school and both parents encouraged his heterosexual interests. He entered into the traditional kissing games at parties with the typical ambivalence of a 12-year-old.

When Jack was interviewed at age 17, he was still unsure about a vocational choice and he was not highly motivated to go to college. He was dating regularly and enjoyed the usual forms of romantic activity. In short, Jack was a rather typical middle-class American adolescent.

In comparison to Peter, he was less sure of his intellectual competence. His failure to do well in school subjects made him fearful of attending college, and this anxiety prevented his choosing any one of a variety of vocations that he might have found appealing.

By 21 years of age, Jack's earlier confidence and aggressivity had diminished. He appeared a bit more subdued and less sure of himself than he did at age 10. He did not attend college because he was afraid of failure and, instead, entered the business world. His avocations were still traditionally masculine, and cars and sports were his primary recreational interests. He was unmarried but dating steadily a girl whom he had met in high school. Jack had not yet established complete independence from his parents, and he was reluctant to leave the security and familiarity symbolized by his home.

The areas of consistency in Jack's personality over the years included the strong identification with his father, the adoption of traditional masculine values, and the rejection of intellectuality. The major aspect of his personality that changed during adolescence was a slight decrease in the apparent independence, bravado, and confidence that he showed during middle-childhood.

Jack's developmental history is more representative than Peter's, in that some traits remained constant, whereas others changed. However, one important principle applies in both cases. The changes in behavior at each new developmental stage were directly related to the child's total personality at that time. When Peter had to make a vocational choice at adolescence, it was unlikely that he would consider becoming a football coach or a pilot. His choice was limited by the pattern of skills, interests, and fears he had acquired over the years. Similarly, Jack's poor school performance and negative attitude toward intellectual activity seriously limited the vocational directions he could take.

Development is not always reversible. The individual cannot completely return to an earlier stage and start life afresh. It is hoped that the presentation of these cases has made this one lesson clear—human development is punctuated with "points of no return."

EMOTIONAL MATURITY—EPILOGUE

It should be possible at this juncture to cast a long look backward over the whole course of the child's development. Such a longitudinal survey should certainly serve to convince us that no one's behavior can be explained by easy platitudes. As we maintained at the outset, people do not behave as they do simply because "their mothers spoiled them," because "they were born that way," or because "they are underprivileged." Our personalities are the result of too many complex interacting forces ever to be adequately explained in terms of any one of them.

In the course of this book, we have reviewed many of the kinds of forces that, taken together, determine the unique personality that the individual develops. We have seen that his development is bound to be affected, for good or ill, by his genetic inheritance; by his prenatal environment; by his physical and psychological environment; by the attitudes and behavior of his parents, teachers, and peers; by the "alarums and excursions" of his own particular era in history; and by his culture and subculture—economic, religious, or social.

When one attempts to translate this breathtaking expanse of possible

developmental influences into personal terms, one question often arises. How do we want our children to develop?

Every parent will have his own answer, determined largely by his own unique set of values and life experiences. The parent who has himself fought against great economic odds may want financial security for his children. The parent who was unloved or rejected may want affection and love. The parent who had to leave school at 14 in order to go to work may feel that a proper education is all-important. Specific frustrations may play a role too. How many parents want their children to realize their own unfulfilled dreams: to be an artist, or banker, or doctor, or general, or statesman, or movie actress?

It does not seem a naive oversimplification, however, to state that probably most of all, most parents want their children "to be happy." But wherein lies the key to happiness; and how can we gain it for our children? By helping them to become financially secure? By looking out for their health? By protecting them from tragedy and misfortune? Certainly we can make efforts in these directions; but we cannot, in this most unpredictable of worlds, be sure of success. In spite of our efforts, fortunes may crumble, health may fail, tragedy—at one time or another—will surely strike.

When we look unsparingly at reality, it seems that the best insurance that we can try to pass on to our children is what the minister probably would call "inner strength" and what the psychologist and psychiatrist would term "emotional maturity" or ego identity. Life brings many crises and disappointments to all of us, but the emotionally mature person will at the least be better prepared to cope with them than the immature, the rigid and inflexible, or the neurotic.

But what actually do we mean by "emotional maturity"? According to English and Finch, "... a person with a mature personality has worked out a harmonious relationship between his basic needs, his conscience and ideals, and the environment which enables him to make maximum use of his psychic energies in constructive work, heterosexual adjustment, and altruistic living" (8).

The first responsibility of those who are entrusted with the task of socialization—parents, teachers, or others—is to understand the structure of the adult society which the child is to enter. Without such knowledge, the process of socialization becomes a hit-or-miss affair. With such knowledge, intelligent training can be undertaken.

No individual can avoid encountering conflicts between his needs and the demands of reality, and between opposing needs within himself. Nor

would such a state of affairs probably be desirable, even if it were possible, since a reasonable degree of conflict often provides the impetus for the further development of the individual. One of the useful functions parents can perform is to help their children learn to tolerate conflict and frustration, and to deal with them effectively. However, through proper parental guidance, the child can be helped to avoid learning conflicting needs which are too strong and which, instead of promoting maturity, tend to handicap the individual's adjustment. Thus the child may be helped to avoid conflicts based on extreme needs for both dependency and independency, on intense desires for social or sexual contact and paralyzing fears of them, on wishes to exploit others and to serve them. The child can also be taught those responses in the form of knowledge, social and performance skills, and cultural attitudes, which are likely to lead in his particular culture to satisfaction of his existing needs, both primary and learned.

In these last two chapters, we have reviewed many of the needs and response patterns which are necessary for successful adaptation to adult life in American culture. We have seen, for example, that the individual must have learned to be reasonably independent and capable of foresightful planning. He must have been motivated to gain satisfaction from fulfilling the roles he must play in his own society. He must have developed the skills necessary for performance of a vocation which is needed by the culture. He must have learned to compete and to cooperate; to assert himself when necessary without paralyzing fear, and to gain satisfaction from being helpful to others. He must have learned to tolerate frustration and anxiety—for no individual's life is without painful stress and at times seemingly insurmountable obstacles. And he must be flexible, able to try out new responses when old ones fail as environmental situations change—for change is inevitable.

Probably more than anything else, he needs to have developed a realistic knowledge of himself, his capabilities and limitations, his predominant needs, his fears, his sources of conflict. For without a reasonable degree of such knowledge, he is like a man trying to put together a jigsaw puzzle when several of the most important parts are missing. He may attempt goal responses of which he is incapable, thus wasting his energy and becoming discouraged or defeated. Conversely, he may neglect to try out those responses of which he is capable, and which could lead to the satisfaction of his basic needs.

He may also deny to himself the existence of needs that he actually has, because he has been taught that they are wrong. But since denying

that one has needs does not lead to their extinction, he may learn to cope with them in maladaptive or neurotic, rather than in realistic ways. Thus, instead of admitting and expressing his anger toward his boss, a young man may displace his angry feelings to his sweetheart, thus unnecessarily alienating her. The young person with extreme dependency needs may run from friendship to friendship, always concluding that "people are no damn good," simply because they have not been able to meet his insatiable needs for dependence. The individual with secret needs for status may deny them to himself, but he may become an antiminority hate monger in an effort to achieve some kinds of prestige. In the words of Franz Alexander, "The Greek maxim, 'Know yourself,' may once have been a luxury. Today it is a necessity. Man can adjust himself to his changing environment only by knowing himself, his desires, impulses, motives, and needs. He must become wiser, more judicious and self-reliant; in one word, more mature" (1).

The task of guiding the child's development so that he will be able to meet the demands of life maturely is not an easy one. For one thing, as we have repeatedly seen, our culture itself is often inconsistent in its expectations. The parent or teacher has to contend with the fact that the society as a whole frequently demands responses of the child which are wholly incompatible with those which will be expected of him as an adult. In addition, the culture often rewards incompatible responses simultaneously, both in childhood and in adult life. Horney has called attention to several of the more important contradictions implicit in our culture (15). She points out, for example, the contradiction between rewards for "competition and success on the one hand, and brotherly love and humility on the other" (15). She also mentions the conflict between stimulation of the individual's needs and the frustrations he encounters in trying to satisfy them. The individual is constantly being encouraged to develop learned needs which he may never be able to satisfy. Finally, Horney notes the contradiction between our emphasis on "freedom of the individual"—being told that one is free and that the "great game of life" is open to him, on the one hand, and on the other, finding that actually for the majority of people the possibilities are quite limited (15).

Even without such cultural difficulties, however, no parent or teacher could prepare a child completely for all the problems he must face.

While specific preparation for all of life's problems is obviously impossible, the basic skills involved in satisfactory social relationships can be taught. Even more importantly, as we have already implied, the acquisition of favorable emotional attitudes and personality traits can be fostered.

Upon the development of such characteristics will depend the child's chances for a happy and effective existence.

Throughout this book, we have tried to stress the ways in which the child's early social learning affects his ultimate psychological adjustment. It is our hope that in the process we have helped to show that much of the personal misery, and thus part of the social unrest in the world today, is not inevitable. For since maladjusted or neurotic behavior, like emotionally mature behavior is learned, it is at least potentially avoidable or modifiable.

Present-day youth are living in a difficult era—an "age of anxiety." Upon their collective display of emotional maturity may rest not only their individual chances for achieving satisfaction from living, but also the survival of the world. The task of helping as many of our youngsters as possible to become mature—responsible, independent, and self-reliant—must be a primary concern of all of us, whether as parents, teachers, psychologists, doctors, ministers, employers, government officials, or even simply as neighbors. As Alexander points out, probably more than anything else, the achievement of emotional maturity depends on "knowing ourselves." On the contribution that it can make to this end rests the ultimate justification, not merely for such a book as this, but for our whole field—the young science of child psychology.

REFERENCES AND ADDITIONAL READINGS

1. Alexander, F. From adolescence to adulthood. *Ment. Health Bull.* Illinois Society for Mental Hygiene, 1948, 26, 1-4.
- 1a. Ausubel, D. P. *Theory and problems of adolescent development*. New York: Grune and Stratton, 1954.
2. Bandura, A., & Walters, R. H. *Adolescent aggression*. New York: Ronald, 1959.
3. Bell, H. M. *Youth tell their story*. Washington: American Council on Education, 1938.
4. Block, H. A., & Flynn, F. T. *Delinquency: the juvenile offender in America today*. New York: Random House, 1956.
5. Caldwell, O. W., & Lundeen, G. E. Further study of unfounded beliefs among junior-high-school pupils. *Teach. Coll. Rec.*, 1934, 36, 35-52.
6. Conger, J. J., Miller, W. C., Gaskill, H. S., & Walsmith, C. R. *Progress report*. (Grant no. M-3040) National Institute of Mental Health, U. S. Public Health Service, Washington, D. C., 1960.
7. Dudycha, G. J. The superstitious beliefs of college students. *J. appl. Psychol.*, 1933, 17, 586-603.
8. English, O. S., & Finch, S. M. *Introduction to psychiatry*. New York: Norton, 1954.

9. Fenton, N., et al., *The delinquent boy and the correctional school*. Claremont, Calif.: Claremont College Guidance Center, 1935.
10. Glueck, S., & Glueck, E. T. *One thousand juvenile delinquents*. Cambridge: Harvard Univer. Press, 1934.
11. Glueck, S., & Glueck, E. T. *Unraveling juvenile delinquency*. New York: Commonwealth Fund, 1950.
12. Glueck, S., & Glueck, E. T. *Physique and delinquency*. New York: Harper, 1956.
13. Havighurst, R. J., & Taba, H. *Adolescent character and personality*. New York: Wiley, 1949.
14. Healy, W., & Bronner, A. F. *New light on delinquency and its treatment*. New Haven: Yale Univer. Press, 1936.
15. Horney, Karen, *The neurotic personality of our time*. New York: Norton, 1937.
16. Johnson, Adelaide M. Sanctions of superego lacunae of adolescents. In K. R. Eissler (Ed.), *Searchlights on delinquency*. New York: Int. Univer. Press, 1949, 225-245.
17. Johnson, Adelaide M. Some etiological aspects of repression, guilt, and hostility. *Psychoanalyt. Quart.*, 1951, 20, 511.
18. Johnson, Adelaide M. Collaborative psychotherapy: team setting. In M. Heiman (Ed.), *Psychoanalysis and social work*. New York: Int. Univer. Press, 1953, 79-108.
19. Johnson, Adelaide M. Juvenile delinquency. In S. Arieti (Ed.), *American handbook of psychiatry*. New York: Basic Books, 1959, 840-856.
20. Johnson, Adelaide M., & Szurek, S. A. The genesis of antisocial acting out in children and adults. *Psychoanal. Quart.* 1952, 21, 233.
21. Kagan, J., & Moss, H. A. *Birth to maturity*. New York: Wiley, 1962.
22. Katz, D., & Allport, F. H. *Students' attitudes*. Syracuse, Craftsman Press, 1931.
23. Kelman, H. Social influence and personal belief: a theoretical and experimental approach to the study of behavior change. Unpublished manuscript.
24. Kohn, M. L. Social class and parental values. *Amer. J. Sociol.*, 1959, 64, 337-351.
25. Kuhlen, R. G., & Arnold, M. Age differences in religious beliefs and problems during adolescence. *J. genet. Psychol.*, 1944, 65, 291-300.
26. Leonard, E. A. Problems of freshman college girls. *Child Developm. Monogr.*, 1932, No. 9.
27. Lundeen, G. E., & Caldwell, O. W. A study of unfounded beliefs among high-school seniors. *J. educ. Res.*, 1930, 22, 257-273.
28. Maccoby, E. E., Johnson, J. P., & Church, R. M. Community integrated and the social control of juvenile delinquency. *J. soc. Issues*, 1958, 14, 38-51.
29. McCord, W., & McCord, J. *Origins of crime*. New York: Columbia Univer. Press, 1959.
30. Meltzer, H. The development of children's nationality preferences, concepts, and attitudes. *J. Psychol.*, 1941, 11, 343-358.

31. Merrill, M. A. *Problems of child delinquency*. Boston: Houghton Mifflin, 1947.
32. Miller, D. R., & Swanson, G. E. *Inner conflict and defense*. New York: Holt-Dryden, 1960.
33. Moss, H. A. Standards of conduct for students, teachers, and parents. *J. counsel. Psychol.*, 1955, **2**, 39-42.
34. Powers, E., & Witmer, H. *Prevention of delinquency: the Cambridge-Somerville youth study*. New York: Columbia Univer. Press, 1951.
35. Reiss, A. J. Social correlates of psychological types of delinquency. *Amer. Sociol. Rev.* 1952, **17**, 710-718.
36. Salisbury, H. E. *The shook-up generation*. New York: Harper (Crest books), 1959.
37. Shaw, C. R. *Delinquency areas*. Chicago: Univer. Chicago Press, 1929.
38. Shaw, C. R., McKay, H. D., et al. *Juvenile delinquency and urban areas*. Chicago: Univer. Chicago Press, 1942.
- ✓ 39. Slack, C. W. Experimenter-subject psychotherapy: a new method of introducing intensive office treatment for unreachable cases. *Ment. Hyg.*, N. Y., 1960, **44**, 238-256.
40. Stone, C. P., & Barker, R. G. The attitudes and interests of premenarcheal girls. *J. genet. Psychol.*, 1939, **54**, 27-71.
41. Szurek, S. A. Notes on the genesis of psychopathic personality trends. *Psychiatry*, 1942, **5**, 1.
42. Szurek, S. A. Some impressions from clinical experience with delinquents. In K. R. Eissler (Ed.), *Searchlights on delinquency*. New York: Int. Univer. Press, 1949, 115-127.
43. Tuddenham, R. D. The constancy of personality ratings over two decades. *Genet. Psychol. Monogr.*, 1959, **60**, 3-29.
44. Tudor-Hart, B. E. Are there cases where lies are necessary? *J. genet. Psychol.*, 1926, **33**, 586-641.
45. Valentine, W. L. Common misconceptions of college students. *J. appl. Psychol.*, 1936, **20**, 633-658.
46. Wattenberg, W. W. *The adolescent years*. New York: Harcourt Brace, 1955.
47. Wirt, R. D., & Briggs, P. F. Personality and environmental factors in the development of delinquency. *Psychol. Monogr.*, 1959, **73**, No. 15, 1-47.

INDEX OF NAMES

- Adkins, N. M., 367, 368
 Alcott, B., 9
 Alexander, F., 606
 Allen, F., 339-340
 Allen, L., 202, 448
 Allport, G., 23, 37-38
 Amatruda, C. S., 106, 236
 Ames, L. B., 106-107, 236
 Anastasi, A., 41
 Anderson, G. L., 477, 478
 Anderson, H. H., 477, 478
 Arsenian, J. M., 216
 Ausubel, D. P., 517, 539, 556, 561, 566
 Axline, V. M., 338, 339
- Baker, C., 457
 Baldwin, A. L., 295, 299
 Baldwin, B. T., 399
 Barbel, 465, 466-467, 469
 Barker, R. G., 308, 309, 311, 519, 576
 Bayley, Nancy, 197, 217
 Beach, F. A., 538, 540
 Benedict, Ruth, 506, 540
 Bennett, E. M., 371
 Blum, G., 274
 Bossard, J. H. S., 365
 Bonney, M. E., 383-384
 Bowlby, J., 211, 213, 214, 215
 Brackbill, Y., 166-167
 Breckenridge, M. E., 365
 Breese, F. H., 295
 Brewer, J. E., 477, 478
 Brodbeck, A. J., 114
 Bronner, A. F., 588-590
 Buhler, C., 394-395
 Burks, B. S., 50
 Burlingham, D. T., 193, 211, 212
 Buxbaum, E., 193
- Caldwell, Bettye M., 78
 Cameron, N., 89, 323-324
 Castner, B. M., 236
 Chen, H. P., 112
- Child, I. L., 174, 183, 368, 484, 485-486
 Cobb, E. A., 367, 368
 Cohen, L. B., 371
 Conn, J. H., 344
 Constantinow, F. K., 70
 Corner, G. W., 57, 61
 Cowles, J. T., 183
 Cronbach, L. J., 196-197, 443, 444
 Curry, F., 112
- D'Andrade, R., 460-461
 Dann, S., 325-326
 Darwin, C., 9
 David, M., 213
 Davis, A., 174, 378, 402-403, 434, 435, 453, 454-455
 Dembo, T., 308, 309, 311
 Dennis, W., 105, 108, 169-170
 Dollard, J., 17, 137, 138, 191-192, 199, 203, 217, 219, 223, 338, 434
 Douvan, E. A., 545, 566
 Dunlop, G. M., 408
- Edwards, M., 414-415
 Einstein, A., 17
 English, O. S., 198, 282, 344, 554, 604
 Erikson, E. H., 507-508, 581
 Escalona, S., 197-198
- Finch, S. M., 344, 604
 Fite, M. D., 334
 Ford, C. S., 538, 540
 Frank, L. K., 537, 538
 Freeman, R. N., 39, 44, 49, 50, 52
 Frenkel-Brunswik, E. A., 413, 414
 Freud, Anna, 193, 211, 212, 325-326, 341
 Freud, S., 4, 17, 273, 275
 Fuller, J. L., 53
- Gebhard, P. H., 535-536
 Gesell, A., 65, 106, 111, 161, 185, 186, 236

- Glueck, E. T., 588
 Glueck, S., 588
 Goldfarb, W., 168, 169, 214
 Goodenough, F. L., 218, 219, 220-221, 442
 Gough, H. G., 414-415
 Graham, Frances K., 78
 Greenberg, P. J., 330, 331
 Gruelich, W. W., 516
 Guilford, J. P., 464, 465, 470, 475, 527

 Hagman, R. R., 319
 Haldane, J. B. S., 40
 Hall, D. E., 74-75
 Hall, C. S., 10
 Hallock, C. T., 380
 Halverson, H. M., 110, 172, 236
 Harlow, H. F., 130, 154-156, 157
 Harris, C. W., 213
 Harris, D. B., 414-415
 Hartley, E. L., 409, 410
 Hartup, W. W., 291
 Havighurst, R. J., 174, 453, 454, 577
 Healy, W., 588-590
 Hebb, D. O., 143
 Hollenberg, E., 284
 Hollingshead, A. B., 563, 564
 Holmes, F. B., 222, 318
 Holzinger, K. J., 39, 44, 49, 50, 52
 Honigsmann, J. J., 275, 332
 Honzik, M. F., 202, 448
 Horney, Karen, 488, 606
 Horrocks, J. E., 555
 Hughes, B. O., 516, 519
 Huschka, M., 206

 Ilg, F. L., 236
 Inhelder, B., 465, 466-467, 469, 524-528
 Irwin, O. C., 112, 114, 115

 Jackson, L. A., 400
 Jersild, A. T., 222, 223, 318, 334, 408, 477, 488-489, 492-493, 517
 Jersild, Catherine L., 408
 Johnson, Adelaide M., 583, 596, 597
 Johnson, W., 247
 Jones, H. E., 40, 42, 50, 51, 518-519
 Jost, H., 45

 Kallborn, J., 295
 Kallmann, F. J., 48
 Kawi, A., 70
 Kaye, C., 545, 566
 Kessen, W., 12
 Kinsey, A. C., 358, 521, 532, 533, 535-536
 Knobloch, H., 70
 Kohn, M. L., 579

 Kroger, R., 563
 Kurtz, J. J., 461

 Lamarck, J. B., 31
 Lenneberg, 116 n.
 Lerner, E., 472
 Levin, H., 204, 206, 207, 278, 279, 286
 Levin, M. M., 563, 565
 Levine, E. M., 484, 485-486
 Levy, D. M., 208, 341-343, 399
 Lewin, K., 308, 309, 311, 479, 507
 Lilienfeld, A. M., 70
 Lippitt, R., 388, 479
 Locke, J., 8, 9
 Lorenz, K. Z., 145
 Louttit, C. M., 563
 Lowrey, C. H., 66-67

 McCarthy, Dortha, 113, 116, 188, 193, 238, 242
 Maccoby, E. E., 204, 206, 207, 278, 279, 286
 Macfarlane, J. W., 202, 316, 317, 448
 McGraw, M. B., 106, 108
 MacRae, D., 472
 Malinowski, B., 282
 Maller, J. B., 486, 487
 Mandler, G., 12
 Margaret, A., 89
 Markey, Frances U., 408
 Marquis, D. G., 13, 15
 Marquis, Dorothy P., 128, 139, 173
 Martin, C. E., 358, 532, 533, 535-536
 Martin, W. E., 414-415
 Matarazzo, Ruth G., 78
 Mead, Margaret, 535, 547-548
 Mendel, G., 36-37
 Merrill, Maud, 442, 443
 Meyers, C. E., 552
 Miller, D. R., 578
 Miller, G. A., 113
 Miller, N. E., 17, 133-134, 137, 138, 191-192, 199, 203, 217, 219, 223, 338
 Miller, R. B., 367, 368
 Mills, C. A., 515
 Milner, E., 452
 Mohr, G. J., 74-75
 Montagu, M. F. A., 67
 Mowrer, O. H., 192-193, 270-271
 Munn, N. L., 105
 Munroe, M., 451
 Murphy, L. B., 357
 Murphy, L. B., 357
 Mussen, P. H., 213
 Muste, M. J., 308, 309

 Nelson, V., 457
 Newell, H. W. A., 396

- Newman, H. H., 44, 49, 50, 52
Nicholas, J., 213
Nowlis, V., 285, 286
- Ogle, C., 515
Olson, W. C., 516, 519
- Pasamanick, B., 70
Pearson, G. H., 198, 282, 554
Pearson, K., 52
Pestalozzi, G., 9
Piaget, J., 18, 117, 119, 120, 130, 246,
465, 466-467, 469, 470-474, 524-528
Plato, 8, 9
Polansky, N., 388
Pomeroy, W. B., 358, 532, 533, 535-536
Potter, E. H., 484, 485-486
Pratt, K. C., 87
- Rabban, M., 373
Radke, M. J., 244-245, 298, 411, 412
Redl, F., 388
Reed, M. F., 477, 478
Reichenbach, H., 20
Reiss, A. J., 595, 596
Rheingold, Harriet L., 159
Ribble, Margaret, 156-157
Richardson, S., 394-395
Robertson, J., 211, 214
Rogers, C. R., 345
Rosen, B. D., 460-461
Rosenbaum, M., 409, 410
Rotter, J. B., 345
Roudinesco, M., 213
Rousseau, J. J., 9
- Salisbury, H. E., 586, 598
Sanford, R. N., 367, 368
Scheinfeld, A., 36-37
Schwartz, S., 409, 410
Sears, Pauline, 218, 285, 286, 489, 490,
491
Sears, R. R., 204, 206, 207, 218, 278,
279, 285, 286
- Sewell, W. H., 213
Sharpe, D. F., 308, 309
Shirley, Mary M., 79, 108, 109, 115
Slack, C. W., 598, 599
Smither, F., 394-395
Solomon, J. C., 342-343
Sontag, L. W., 45, 73, 457
Sperry, M., 284
Spitz, R. A., 161, 163-164, 167, 214
Sprock, B., 247-248
Stern, C., 53
Stevenson, H. W., 333-334
Stevenson, N. G., 333-334
Stone, C. P., 519, 576
Sullivan, H. S., 274
Swenson, E. G., 461, 578
Symonds, P. M., 393, 399
- Taba, H., 577
Terman, L. M., 442, 443
Thompson, G. G., 105
Thompson, H., 44, 92, 185, 236
Thompson, W. R., 53
Tiedemann, D., 9
Tinbergen, N., 144
Tryon, C. M., 550
Tyler, L. E., 372
- Vincent, E. L., 365
- Walsh, M. E., 335
Watson, E. H., 66-67
Watson, J. B., 173
Wattenberg, W. W., 532
Wechsler, D., 442-443
Weismann, A., 31
Werner, H., 242
Wheatley, G. M., 380
White, R. K., 479
White, R. W., 221
Whiting, J. W. M., 174, 218, 285, 286
Wickman, E. K., 482, 483
Witkin, H. A., 475
Wolfe, J. B., 133

INDEX OF SUBJECTS

- Abstract concepts, learning about, 470-474; in preschool years, 243-246
- Acceptance, parental, in middle childhood, 392-397, 400-401; by peer groups, 383-390; by peers, sex-typing and, 372-373
- Accommodation, in intellectual development, 252-253; of newborn, 98-99
- Achievement motivation, 141, 458-462; intellectual ability and, 459-462; in middle childhood, 359; mother and, 294, 295-299; parental restrictiveness and, 295-299; in preschool years, 293-299; in second year, 221; stability of, 294-295
- Acquired characteristics, transmission of, 31
- Active play therapy, 342-343
- Activity, *see* Motor activity
- Adjustment, heterosexual, 541-546; language difficulties and, 247-248; maternal attitude and infantile, 75-76; norm establishment for, 2; parental behavior and, 397; physical development and, 6; problems in adolescence, 505-508, 522; to strange adults, 213-215; teacher-child relationship and school, 476-477
- Adolescence, adjustment problems in, 505-508; awkwardness in, 521-522; behavior stability in, 556-559, 582-583; boy-girl relationships in, 542-544; conscience in, 572-573; culture and sexual responses in, 538-541; ego identity in, 507-508, 580-582; emotional maturity in, 603; family and independence in, 551-555; fertility in, 515; independence in, 546-559; intellectual processes in, 465, 468, 522-528; juvenile delinquency in, 583-603; long-range goals in, 378-379; maturity age and, 518-519; menstruation significance in, 520-521; moral standards in, 570-580; nocturnal emission in, 521; Oedipal conflicts in, 276; parents and peer group as conflict sources in, 573-574; personality in, 516-522; physical development in, 508-515, 516-522; relations with opposite-sex peers in, 541-546; religious belief changes in, 575-576; reproductive system in, 512-516; self-concept in, 516-519; sex responses in, 506, 531-546; shifting moral standards and, 574-575, 576-578; values in, 570-580; vocational choice in, 559-567
- Adulthood, Oedipal conflicts in, 276
- Affiliation, as motive, 141
- Age, ability to set long-range goals and, 378-379; computation of, 57; of first menstruation, 45-46; of mother, fetus and, 72; of toilet training initiation, 205, 206
See also under specific period, e.g., Middle childhood
- Aggression, childhood behaviors and adult, 287-288; competition and, 332; dependency and, 291, 292-293; factors in, 283-286; frustration and, 283-286, 306-308, 311; inhibition of, 284-286; jealousy and, 321-322; methods of handling, 220; in middle childhood, 359; neonatal activity, and, 88; parental restrictiveness and, 295-299; permissiveness and, 284-285, 307, 400; in preschool years, 283-289; punishment and, 283-286, 307, 308; quarrels and, 288-289; reinforcement and, 217-218; in second year, 217-221; sex differences in, 286-289; social class and attitude towards, 386-387, 579; stability of, 582-583; toilet training and, 201-203, 217
- Allergies, family and, 398

- Amaurotic family idiocy, 47, 48-52
Amnion, 60
Analytic thinking, 475-476
Anatomy, heredity and, 43-44
Anger, early manifestations of, 218-221
 See also Aggression
Anoxia, newborn and, 77-78
Anticipatory responses in learning, 139-140
Anxiety, dependent behavior and, 291; determinants of, 143-146; fears and, 320; guilt and, 147; intellectual ability and, 462-464; jealousy and, 321; as learned drive, 142-143; in middle childhood, 360, 407-408; minority-group membership and, 409-411; moral standards and, 473, 572; over mother separation, 211-217; of Negroes, 410-411; in preschool years, 281-282, 303; psychotherapy and, 343-344; sources of, 146-147, 222, 223, 407-408, 581; in second year, 221-223; sexual responses and, 281-282, 536; toilet training and, 200, 201, 204
 See also Defenses; Fear
Approach-avoidance conflicts, 281, 292
Assimilation, intellectual, 252-253; into peer society, 380-381
Association, emotions and, 121
Attitudes of children, toward beginning school, 430-431; toward parents, social class and, 403-404; and prejudice, 7-8;
 See also specific type
Attitudes, parental: fetus and, 74-77; infant feeding and, 175-177; intellectual development and, 458-459; toward adolescent independence, 553-555; toward school, 431-434; toward toilet training, 206
Attraction, bases for heterosexual, 544-546
 See also Puberty
Authoritarian control, 297
Autocracy, adolescent independence and, 551-552; behavior problems and, 399-400; and preschool behavior in home, 298
Autonomic nervous system, 45, 72-73
Autonomy, *see* Independence
Baby biographies, 9-10
Behavior, anxiety and, 142-143; conception of good and bad, 244-246; effects of premature birth on, 79; exploratory, in second year, 207-210; factors in school, 426-427, 482-483; fears and, 318; goals and learning, 132-133; heredity in, 39-42; individual, 2-4; influence of teachers', 477-482, 488-489; influences on, 29; institutionalization and, 163-165, 169; learning sex-appropriate, 263-264, 373-374; neonatal and future, 89; patterns of newborn, 105-106; physique and, 367-369; social class and, 402-403; stability of, 556-559, 582-583; theories of, 17-18; viewpoints of, 7-8
 See also Behavior problems; and under specific type
Behavior problems, factors associated with, 316-318; incidence in normal children, 316; parental permissiveness and restriction and, 398-401; in preschool years, 316-318; rejection and, 395-396, toilet training and, 201-203
Binocular fixation of newborn, 98
Birth process, anxiety and, 74; birth injury and, 77-78; infants and, 70-71, 77-78, 87-88; maternal age and, 72; premature, 78-80
Blastocyte, 59
Body build, *see* Physique
Body image, in adolescence, 516-519
Body proportions, in adolescence, 509-510; in middle childhood, 362; of newborn, 92; in preschool years, 234; in second year, 184
Bottle feeding, 171-172, 173
Breast feeding, 171, 173, 174, 175-176, 177
Causality, learning about, 473
Cephalocaudal trend in development, 111
Cerebral palsy, 77
Child psychology, baby biographies and, 9-10; behavior theory, 17; disciplines of, 7-8; experimental method in, 18-21; hypotheses in, 17-22; modern, 1-2, 10; philosophical writings and, 8-9; practical importance of, 2-5; psychoanalytic theory and, 17-18; scientific process and, 15-23
Chorion, 60
Chromosomes, at fertilization, 30; of germ cells, 33-36; in mongolism, 72; polarization of, 32-33; sex chromosomes, 36
Colic, in newborn, 73-74
Communication, scientific, 11-12; stages in language, 246

- Competence, parental, identification and, 267
- Competition, factors in, 331-333; individual versus group, 486-487; in preschool years, 330-333; in school, 486-489; sex-typing and, 331-332; teacher behavior and, 488-489
- Comprehension, language, in second year, 190, 191
- Conception, *see* Fertilization
- Conceptual intelligence, 117, 119, 242-248
- Concrete operations intellectual stage, 253, 255, 524, 525
- Conflict, middle childhood sources of, 380, 407-408; peer group and, 879, 390-392; sources of adolescent, 551-553, 573-574
- Conscience, in adolescence, 572-573; attitudes and formation of, 278-279; in middle childhood, 407-408
- Controls, acquisition of, 280-281; and preschool behavior in home, 295-297
- Convergence, visual, of newborn, 98
- Convergent thinking, 464, 465
- Coordination, of actions with perceptions, 117-119, 120; neonatal responses and, 106; visual, of newborn, 98
- Cooperation, in school, 486-489; training for, 313-315
- Crawling, in first year, 106-107
- Creeping, in first year, 106-107
- Cretinism, 3
- Crippling, personality and, 365-366
- Cross-sectional approach to research, 25-26
- Culture, ability to set long-range goals and, 376-379; adolescent adjustment and, 505-506, 507; anxiety and, 147; competition and, 332; independence in American, 546, 549-556; independence in primitive, 547-549; infant feeding and, 174-175; motives and, 148; Oedipal conflict and, 275-276; opposite-sex peer relations and, 541; sexual attitudes and behavior and, 538-541; sexual patterns in American, 532-537; vocational adjustment in American, 561-562; vocational adjustment in primitive, 560-561
- Curiosity, about nature, 283; about sex, 282, 531
- Death rate, *see* Mortality rate
- Decidua capsularis*, 60
- Decision making, 464, 465
- Defense(s), denial as, 305-306; described, 303-304; mechanisms of, 303; in middle childhood, 407-408; in preschool years, 303-306; projection as, 306; reality and, 304; regression as, 305; repression as, 305-306; withdrawal as, 304
- Delinquency, 3, 583-603; ego identity and, 581-582; environment and, 584-587; etiology of delinquent types, 595-597; intelligence and, 587, 591-595; parent-child relationships and, 590-591; personality and, 587-590, 591-595; physique and, 587; self-perceptions in, 401; sex differences in, 584, 592-595; social class and, 585, 591-595; treatment of, 597-599
- Demand feeding, 172
- Democracy, in home, preschool behavior and, 295-299
- Denial, as defense, 305-306
- Dependency, in adolescence, 556-559; aggression and, 291, 292-293; in first two years, 211-212; frustration and, 291; intellectual achievement and, 459-462; in middle childhood, 359; parental restrictiveness and, 295-299; in preschool years, 289-293; sex differences and, 290-291; socialization and, 290-293; stability of, 556-559, 582-583
- See also* Independence
- Depth perception, of newborn, 101
- Destructiveness, 286, 287, 288
- Development, approaches to research on, 23-26; environment and, 29; heredity in, 42-54; of norms, 2
- See also* Prenatal development; and under specific type, e.g., Physical development
- Diet, maternal, fetus and, 67-68
- Differentiation, in visual perception, 248
- Discrimination, in learning theory, 137
- Disease, 363-366; academic success and, 438-440; genetic factors in, 46; maternal, fetus and, 69-70; in middle childhood, 363; personality and, 365-366
- Divergent thinking, 464, 465
- Dominance, as motive, 141; training for, 313-315
- Drugs, maternal, fetus and, 68-69
- Ectoderm, 60
- Ego, *see* Self-concept
- Elimination patterns, in first year, 96
- Embryo, maternal influences and, 61-62,

Embryo (*Continued*)

63; membranes of, 60-61; origin of, 29-30; tissue differentiation of, 60

See also Prenatal development

Emotions, association and, 121; characteristics of, 120; development of, in first year, 120-122; effects of maternal, 62, 72-74; individual differences in, 121-122; learning and, 120-121; perception and, 121; physical health and, 212; premature birth, and problems of, 79; rejection and stability of, 396; viewpoints of, 7-8

Emotional maturity in adolescence, 603

Endoderm, 60

Enuresis, 206-207, 317

Environment, 2-3; activity level and, 88; anxiety over inability to master, 147; body growth pattern and, 44; delinquency and, 3-4, 584-587; development and, 29, 67-77; importance of, 37-42; intelligence and, 42-43, 49-52, 117; language development and, 114-117, 241-242; learning about, 470-472; motives and, 149-150; personality and, 53-54

Ethnic group, identification with, 409-410; vocational choice and, 564-565

Exhibitionism, in preschool years, 282

Experience, moral standards and, 571

Experimental method in child psychology, 18-21

Explanation, fears and, 321

Extinction, in learning theory, 137

Fallopian tubes, 57, 512-513

Family, ability to set long-range goals and, 376-379; acceptance or rejection by, 392-397, 400-401; adolescent conflicts and, 551-555, 573-574; attitudes toward sexuality, 537-538; class differences and children's attitudes toward parents, 403-404; conflicts over adolescent independence, 551-555; delinquency and, 590-591; development of psychosomatic symptoms and, 397-398; influence of, in middle childhood, 361, 392-407; IQ and mastery of intellectual tasks and, 458-462; minority-group status and parental attitudes toward school, 434; moral standards and, 572; Oedipal conflict and, 275-276; opposite-sex peer relations and, 541-543; parental rewards for school

achievement, 431-433; personality and position in, 406; restriction and permissiveness by, 398-401; as root of childhood prejudice, 412, 413-415; school and separation from, 427-428; siblings and, 404-406; social class and, 402-403; spacing in, 406-407; vocational choice and, 563-565

Fear, described, 142-143; intelligence and, 319; mother and, 319-320; in preschool years, 318-321; psychotherapy and, 343-344; of school-age children, 408; susceptibility to, 318-319; symbolic, 408; techniques of eliminating, 320-321

See also Anxiety

Feeding, cultural factors in, 174-175, in first year, 171-177; infantile learning and, 128, 157-171; maternal attitudes and, 175-177, 198; practices of, 171-177; schedules in, 97, 172, 173; solid foods in, 97

Fertilization, 29; in adolescence, 515; hereditary transmission and, 30-37; occurrence of, 57-58

Fetal membranes, 60

Fetus, defined, 30; development of 64-67; environmental influences on, 67-77; maternal age and, 72; maternal attitudes and, 74-77; maternal diet and, 67-68; maternal diseases and, 69-70; maternal drugs and, 68-69; maternal emotional states and, 72-74; pregnancy disturbance and, 70-71; Rh factors and, 71-72; sensory apparatus of, 65-66; viability of, 65-66

See also Prenatal development

First year, basic needs in, 94-97; body growth in, 91-94; congenital differences among neonates, 88-91; developmental trends in, 111; emotional development in, 120-122; feeding in, 171-177; institutionalization and social learning in, 162-171; learning about reward value of mother, 157-171; mental development in, 117-120; mother and social behavior in, 159-161; motor development in, 106-117; muscular development in, 94; response capabilities in, 105-106; sensory development in, 97-105; smiling response in, 161; social learning in, 153-182; speech development in, 111-117; tactile contact with mother in, 154-157

See also Newborn

- Formal operations stage of thought, 253, 255, 524, 525-526
- Friendships, in middle childhood, 388-390; in preschool years, 329-330
See also Peer group; Peer relations
- Frustration, aggression and, 283-286, 306-308, 311; constructive reactions to, 311-312; dependency and, 291; described, 306; jealousy and, 321; training and reactions to, 312-315
- Gastrointestinal tract of embryo, 62
- Generalization, discrimination in, 137; mediated, 136, 243-244; principle of, 136-137
- Genes, alteration of, 31; defined, 30
- Genetic factors, in behavior, 39-42; in development, 29-56; in disease, 46; importance of, 37-42; intelligence and, 42-43, 49-52; in longevity, 46; in mental disorder, 47-49; in mental retardation, 47; in motor ability, 46; personality characteristics and, 52-54, 368; physical characteristics and, 43-44, 46; physiology and, 44-46; in psychosomatic conditions, 45
- Genetics, 2-3; extent of genetic influences, 38-39; learned motivation and, 148-149; Mendelian laws of, 36-37; transmission of heredity, 30-37
- Germ cells, *see* Ovum; Sperm
- German measles, in pregnancy, embryo and, 63, 70
- Goals, ability to set long-range, 375-379; in learning, 132-133; long-term school achievement and, 435-436; preschool concepts of, 244-246; socioeconomic factors and vocational, 562-566
- Gonadotropic hormones, 509
- Grammar, learning, 193-194; in preschool years, 239-241; of two-year-old, 190-191
- Cratification of motives, 280-281
- Growth, in adolescence, 509-512; in first year, 91-94; in middle childhood, 361-369; in preschool years, 233-235; in second year, 183-184
- Guilt, anxiety and, 147; conscience and, 572-573; in middle childhood, 407-408; moral judgment and, 473
- Health, emotions and, 212; in middle childhood, 363
See also Disease
- Hearing, development in first year, 101-103; personality and loss of, 365
- Height, in adolescence, 509, 510; in middle childhood, 361; premature birth, and effects on, 76-77; in preschool years, 233-234; in second year, 183-184
- Heredity, *see* Genetic factors; Genetics
- Heterosexual relations, attraction and rejection in, 544-546; factors in, 541-546; intercourse in adolescence, 532, 537
- Home, aggression and, 283-286; aggressive, dependent, and mastery behavior and, 295-299; anger and situations in, 219, 220-221; behavior problems and, 317; language development and, 193, 241, 242; psychotherapy and, 344-345; socialization and, 324-326
See also Family
- Homosexual contacts in adolescence, 532, 537
- Hostility, as motive, 141; toilet training and, 201-203
- Hunger, in first year, 96-97, 153-154
See also Feeding
- Huntington's chorea, 38, 47
- Hypotheses in child psychology, 12, 14-15, 18-22
- Idiographic approach, 23-25
- Identification, with adult independence, 546-547; delinquency and, 597; described, 264-266; desire for, 199; development of, 266; duration of, 280; with ethnic groups, 409-410; in middle childhood, 369-370; moral standards and, 571; with mother, fears and, 319-320; of Negroes, 410-411; perception of similarity to parents, 267-268; play and, 269-270; research on, 271-273; sex-typing and, 268-269; social pressure and, 270
- Illiteracy, environmental antecedents of, 40
- Imitation, in toilet training, 199
- Independence, in adolescence, 546-559; cultural pressures for, 546; establishment in primitive cultures, 547-549; family and adolescent, 551-555; mother and, 210-211; identification with adult, 546-547; problems in American culture, 549-556; in second year, 207-210, 211-212; stability of, 556-559, 582-583
See also Dependency

- Individual, differences in modes of thinking, 474-476; social problems and, 4-5; understanding, 2-4
- Indulgence, in home, preschool behavior and, 297
- Infants, *see* First year
- Injury at birth, consequences of, 77-78
- Inhibition(s), acquisition of, 280-281; of aggression, 284-286; of fear responses, 321; psychotherapy and, 343-344; of sexual responses, 539
- Initial response, 138, 139
- Innate response, 138-139
- Institutionalization, 168; language development and, 193, 241; relevant variables in, 165-168; research on, 163-165; sensory deprivation and, 167-168; social development and, 162-171
- Intellectual development, in first year, 117-120; institutionalization and, 163-165, 168, 169-170; parental influence on, 458-462; Piaget's stages of, 253-255; in preschool years, 252-258; in second year, 196-198
See also Intellectual processes; Intelligence
- Intellectual processes, at adolescence, 465, 468, 522-528; individual differences in modes of thinking, 474-476; in middle childhood, 464-476; Piaget's description, 465-469, 524-528; types of, 464-465
See also Intelligence
- Intelligence, anxiety and, 462-464; conceptual, 117, 119; delinquency and, 587, 591-595; effects of premature birth on, 78-79; environment and, 117; factors in, 42-43, 453-455; fear and, 319; growth stages in, 468-469; heredity and, 47, 48-52; language development and, 188; meaning of, 442-443; measurement of, 441-455; performance in school and, 470; personality and, 455-458; physical defects and, 437-438, 439; self-concept and, 516; sensorimotor, 117-119, 120; socioeconomic status and, 433-434
See also Intellectual development; Intellectual processes; Intelligence quotient; Intelligence tests
- Intelligence quotient, in adolescence, 522-524; anxiety and, 463; constancy of, 446-448; described, 445-446; distribution of, 446; parental influence on, 458-462; personality and changes in, 455-458; school achievement and, 449; types of, 450-451; usefulness of, 448-449
- Intelligence tests, assumption underlying, 464; Binet test, 445; construction of, 443-444; criticism of current, 453-455; group, 451; of infants, 196-198; in preschool years, 255-258; reading readiness tests, 451-453; selecting test items, 444-445; social class bias in, 454-455; types of, 449-450
- Interests, maturity age and, 519; viewpoints of, 7-8
- Intuitive thought, 253, 254-255, 525
- Jealousy, origins of, 321; reactions to, 321-322
- Justice, concept of, 470-473
- Juvenile delinquency, *see* Delinquency
- Language, abstract quality of, 242-243; in aggressive behavior, 218, 286-287, 288-289; communication stages in, 246; difficulties, in preschool years, 247-248; elements of, 187-188; environment and, 114-117; major variables in, 111-112
See also Language development
- Language development, environment and, 241-242; in first year, 111-117; home life and, 193; institutionalization and, 168, 169, 170, 193, 241; intelligence and, 188; learning and, 191-194; mother and, 192-193, 241; physical development and, 440; in preschool years, 237-248; in second year, 187-195; sex differences in, 194-195; social class and, 195
- Leadership, group atmosphere and adult, 477-482
- Learned needs, 131-135, 140-148
- Learning, anticipatory responses in, 139-140; anxiety and, 142-147; emotions and, 120-121; goals in, 132-133; infantile needs and, 153-157; institutionalization and social, in first year, 162-171; language development and, 191-194; motivation in, 129, 131-133; nature of, 127-129; prohibition, in sex-typing, 264; psychotherapy and, 343-344; reactions to frustration and, 312-315; regression in, 139; reinforcement in, 129-131, 133-135; reward value of mother, 157-171; social, in first year, 153-182; social, in preschool years, 261-302
See also Learning theory

Learning theory, 17, 18, 127-152; basic principles of, 131-135; cue in, 127; discrimination in, 137; extinction in, 137; motivation sources in, 131-133; reinforcement gradient in, 135; response in, 127; response hierarchy in, 137-139; stimulation intensity and, 129-131; stimulus generalization, 136-137; stimulus similarity in, 136-137; toilet training and, 189-200, 201; types of needs and motives in, 140-147

See also Learning

Liquor amnii, 60

Locomotion, development in first year, 106-110; in second year, 184-186

Logic, acquisition of, 467-469

Longevity, genetic factors in, 46

Longitudinal approach to research, 25-26

Longitudinal axis of embryo, 62

Love, anxiety over loss of, 146-147, 211-217; as motive, 140-141; sex-typing and desire for, 264

Lying, 286, 287, 288

Maladjustment, self-perceptions in, 401

Manic-depressive psychosis, 49

Manipulation development, in first year, 110-111

Marital discord, rejection of children and, 396

Marriage, adolescent preferences for partners in, 545-546

Mass-to-specific trend in development, 111

Mastery behavior, *see* Achievement motivation

Masturbation, 358; in adolescence, 532, 537; in preschool years, 281-282

Mediated generalization, 136, 243-244

Mendelian laws of heredity, 36-37

Menstruation, age of first, 45-46, 513-514, 515, 516; ovum in menstrual cycle, 57; significance of, 520-521

Mental development, *see* Intellectual development

Mental disorder, genetic factors in, 47-49

Mental retardation, genetic factors in, 47

Mesoderm, 60

Middle childhood, anxiety and conflict in, 360, 407-418; described, 357-361; family in, 361, 392-407; friendships in, 388-390; identification in, 369-370; intellectual processes in, 464-476; peer relations in, 359-361,

372-373, 379-392; physical growth in, 361-369; prejudice in, 411-418; school in, 426-497; sex-role identification in, 369-379; withdrawal reactions in, 360-361

Minority groups, delinquency and, 585; identification with, 409-411; membership in, and anxiety in child, 409-411; parental attitudes toward school and, 434; rejection of, 412

See also Prejudice

Mitosis, 29

Model, in identification, 264, 265

Mongolism, maternal age and, 72

Moral standards, in adolescence, 570-580; anxiety and, 473, 572; changes with age, 570-571; development of, 470-473; of parents and peer groups, 573-574; in preschool years, 244-246, 276-279; self-concept and, 516; sex differences in, 579-580; shifting, 574-575, 576-578; social-class differences in, 578-579

Morphemes, 111, 112, 187, 237

Morphological rules of language, 111, 112, 237

Mortality rate, maternal age and, 72; in middle childhood, 363

Mother, achievement motivation and, 294, 295-299; anxiety over separation from, 211-217; attitudes of, and conscience formation, 279; children's fears and, 319-320; consequences of inadequate mothering, 168-171; dependency and, 289-290; factors in feeding practices of, 173-177; fetus and attitudes of, 74-77; intellectual development and attitudes of, 458-459; language development and, 192-193, 241; learning reward value of, 157-171; role in second-year behavior, 207-211; role in toilet training, 198-199, 200, 201, 206; social class and attitudes of, 402-403; social development and, 159-161, 215-217; variability in, 166; tactile contact with, 154-157; teacher as substitute, 428-429

See also Family

Motivation, aggressive, in second year, 217-221; dependency, 292; for intellectual achievement, 458-462; in learning, 129, 131-133; stimulation intensity and, 129-130

See also Motives; and under specific motivation

Motives, awareness of, 140; bases of, 147-148; described, 140-142; environment and, 149-150; gratification

- Motives (*Continued*)
 of, 280-281; heredity and, 148-149;
 in moral standards, 277; for play,
 269-270; in second year, 211-225; in
 sex-typing, 263-264; types of, 140,
 147
See also Motivation
- Motor activity, in anger, 218; develop-
 ment of, 94; of fetus, 64, 65; of
 newborn, 88-89
- Motor development, in adolescence, 512;
 in first year, 106-117; genetic fac-
 tors in, 46; institutionalization and,
 163, 165; in middle childhood, 362;
 in preschool years, 235-236; in sec-
 ond year, 184-187
See also Muscular development
- Muscular development, 94; in adoles-
 cence, 512; in middle childhood,
 362; in preschool years, 234; in sec-
 ond year, 184
- Myelinization, 184, 234
- Nature, animism concepts of, 473-474;
 causal sequences in, 473; curiosity
 about, 283
- Nature forces, 29, 37-39
- Needs, basic, in first year, 94-97; learned,
 131-132, 183-135, 140-147; of new-
 born, 140; play and, 269; primary,
 131, 132, 133, 148; types of, 140,
 147
- Negroes, identification of, 410-411; modi-
 fication of attitudes towards, 416-
 418; parental attitudes toward
 school, 434; rejection of, 412
- Nervous system, birth injury to, 77-78;
 development of, 63; effects of pre-
 mature birth on, 78; of embryo, 62;
 in preschool years, 234; in second
 year, 184
- Neuroses, family influence on, 397; self-
 perceptions in, 401
- Newborn, activity of, 88-89; anoxia and,
 77-78; basic needs of, 94-97, 153-
 154; birth process and, 77-80, 87-
 88; body proportions of, 91-92, 93;
 colic in, 73-74; emotions of, 121-
 122; influences on, 76-77; learning
 in relation to feeding, 128; learning
 about reward value of mother, 157-
 171; oral phase of, 154; physiologic
 reactivity of, 91; response capabili-
 ties of, 90, 105-106; sensory develop-
 ment in, 97-105; sensory thresholds,
 of, 89-90; tactile contact with moth-
 er, 154-157; temperature regulation
 in, 94-95
- Nocturnal emission, in adolescence, 521,
 533
- Nomothetic approach, 23-25
- Norms, development of, 2, 3; intellectual
 development of, 527-528
- Nursery school, atmosphere in, 337-338;
 objectives of, 334; peer relations
 and, 334-336; socialization of unde-
 sirable responses and, 336-337
- Nurturance, 29, 37-39; dependency and
 need for, 291-292; identification and,
 266; sex-typing and desire for, 264
- Observation, in child psychology, 16-17;
 in science, 13-14
- Odors, neonatal reaction to, 103
- Oedipal conflict, 273-275
- Oral phase, of newborn, 154
- Ordinal position, influence of, 405, 406
- Overmeticulousness, results of, in second
 year, 209-210
- Overprotection, behavior problems and,
 399-400; results of, in second year,
 208-209
- Oviduct, 57
- Ovum, chromosome constitution of, 33-
 36; and embryonic development, 58;
 in fertilization, 29, 32-33, 57-59; in
 sex determination, 36
- Oxygen need, in neonate, 94
- Pain, anxiety and, 143, 146; differential
 sensitivity to, 90; sensitivity of new-
 born, 104-105
- Parents, attributes of, 266-267; identifica-
 tion with, 265, 266; perception of
 similarity to, 267-268; psychotherapy
 with, 344-345; sex-typing and, 262;
 sexual identification and personality
 of, 270-271
See also Family; Mother
- Paresis, 47
- Peer group, adolescent conflicts and, 573-
 574; conformity to, 391-392; delin-
 quency and, 584-585, 586; friend-
 ship selection in, 388-390; functions
 of, 390; integration into new, 380-
 381; moral standards and, 570-571;
 role of, 379-380; school achieve-
 ment and, 433-435; social class and
 status in, 385-387; social status in,
 383-385, 387-388; socialization of,
 and, 387-388, 390-392; varieties of,
 381-382
See also Peer relations
- Peer relations, competition and, 330-333;
 desire for friendships, 329-330; home
 atmosphere and, 324-326; in middle

- Peer relations (*Continued*)
 childhood, 359-361, 372-373, 382-383; nursery school and, 334-336; with opposite sex, 541-546; participation and, 326-328; in preschool years, 322-334; in second year, 221; sex-typing and, 372-373
See also Peer group
- Perception, coordination of actions with, 117-119, 120; development in preschool years, 248-252; emotions and, 121; of parental rejection and restriction, 400-401; of spatial orientation, 250-251; whole-part, 249-250
- Perceptual-motor coordination, 195
- Perceptual thought, 525
- Permissiveness, aggression and, 284-285, 307; parental, in middle childhood, 398-401
- Personality, appearance and, 517-519; delinquency and, 587-590, 591-595; development of, 5-7; effects of premature birth on tests of, 79; environment and, 53-54; etiology of delinquent types, 595-597; genetic factors in, 52-54; individual differences in teacher, 483-484; intelligence and, 455-458; maturity age and, 518-519; parental domination and, 399; physical defect and, 363-366; physical development and, 516-522; physique and, 366-369; popularity and, 384-385; prejudice and, 412-415, 416-418; sex-role identification in, 369-379; siblings and, 404-407
- Phenylketonuria, 47
- Phonemes, 111-112, 187, 188, 237
- Physical disease and defect, 363-366; academic success and, 438-440; genetic factors in, 46; intelligence and, 437-438, 439; in middle childhood, 363; personality and, 363-366; role of, 2-3; social class and, 439
- Physical development, in adolescence, 508-516; heredity and, 43-44; personality and, 516-522; psychological adjustment and, 6; school achievement and, 437-441; in second year, 183-184; speech and, 440
- Physical harm, anxiety over potential, 146
- Physiology, in adolescence, 509, 510; heredity and, 44-46; in middle childhood, 362
- Physique, delinquency and, 587; personality and, 366-369, 517-519
- Play, identification and, 269-270; motives for, 269-270; needs and, 269; types of, 327, 328
- Play techniques in psychotherapy, 338-343, 344
- Polarization, 32
- Popularity, personality and, 384-385; reasons for, 372-373
- Power, parental, identification and, 267
- Preconceptual thought, 254
- Prejudice, development of, 411-412; intellectual functioning and, 415-416; in middle childhood, 411-418; modification of, 416-418; personality and, 412-415, 416-418; in preschool years, 333-334
See also Minority groups
- Preliminary observation in scientific investigation, 13-14
- Premature birth, consequences of, 78-80; occurrence of, 70
- Prenatal development, and birth processes, 77-80; embryonic period, 60-63; environmental influences on, 67-77; fetal period, 64-67; period of ovum, 58-60
See also Embryo; Fetus
- Preschool years, abstract concepts in, 243-246; achievement motivation in, 293-299; aggression in, 283-289; anxiety in, 303; behavior problems in, 316-318; competition in, 330-333; conceptualization stages in, 242-248; conscience formation in, 278-279; curiosity in, 282-283; defenses in, 303-306; dependency in, 289-293; ego ideals in, 279-280; fears in, 318-321; friendship in, 329-330; frustration and behavior in, 306-322; intellectual development in, 237-258; intelligence tests in, 255-258; jealousy in, 321-322; language difficulties in, 247-248; moral standards in, 276-279; motor development in, 235-236; nursery school and social behavior in, 334-338; peer relations in, 322-334; perceptual development in, 248-252; personality development in, 261-353; physical growth in, 233-235; prejudice in, 333-334; psychotherapy in, 338-350; sexuality in, 281-282; social behavior during, 324-330; social learning in, 261-302
- Primary need, 131, 132, 133, 148, 153-157
- Projection, as defense, 306
- Pronunciation, in preschool years, 239-241
- Proximodistal direction of development, 111

- Psychoanalysis, techniques applied to children, 340-341; theory of, 17, 18
- Psychoneuroses, factors in, 47
- Psychoses, factors in, 47, 49
- Psychosomatic disorder, family influence on, 397-398; genetic factors in, 45
- Psychotherapy, in delinquency, 3-4; directive play therapy, 340-343; learning and, 343-344; nondirective approaches, 338-340; objectives of, 338; with parents, 344-345; in pre-school years, 338-350
- Puberty, age of, in girls and boys, 513-516; defined, 508-509
See also Adolescence
- Punishment, aggression and, 283-286, 307, 308
- Pupillary reflex in newborn, 97-98
- Quarrels, aggression and, 288-289
- Radiation, maternal X-ray, fetus and, 69
- Rationality, as motive, 141
- Reading readiness tests, 451-453
- Reality, defenses and, 304
- Reasoning, acquisition of, 467-469; in adolescence, 524, 526, 527
- Recognition, 251-252, 464, 465; as motive, 141
- Regression, as defense, 305; jealousy and, 322; frustration and, 308-311; in learning, 139
- Reinforcement, aggression and, 217-218; delayed versus immediate, 375-378; gradient of, 135; in learning, 129-131, 133-135; by mother, in first year, 157-171; primary, 133; sources of, 133-135; stimulation intensity and, 129-130; in toilet training, 199-200
- Rejection, achievement motivation and, 460-461; bases for heterosexual, 544-546; parental, 392-397, 400-401
- Release therapy, 341-342
- Religion, adolescent adoption of, 571-572; changes in beliefs during adolescence, 575-576; differences in family and peer group, 574
- Repression, as defense, 305-306; jealousy and, 322
- Response(s), anticipatory, 139-140; capabilities of newborn, 105-106; extinction of, 137; hierarchy of, in learning, 137-139; initial, 138, 139; innate, 138-139; learned in school, 429-430; learned and unlearned, 105-106, 127; motor, in first year, 116-117; regression in, 139; resultant, 138, 139
- Reproductive system in adolescence, 512-516
- Research, in development, approaches to, 23-26; longitudinal versus cross-sectional, 25-26; results of human genetic, 42-54; scientific, described, 13-15
- Restraint, anger and, 220
- Restriction, parental, in middle childhood, 398-401
- Retention, 464, 465
- Reversibility in thinking, 465-466, 527
- Reward, *see* Reinforcement
- Rh factors, 71-72
- Rivalry, 330, 332
- Rooming-in-plan, 176
- Satiation, frustration and, 307, 308
- Schizophrenia, 48-49
- School, 426-497; adequacy feelings and, 489-493; attitudes toward beginning, 430-431; characteristics and demands of, 427-431; competition in, 486-489; cooperation in, 486-489; curriculum, social class and, 436-437; factors of achievement in, 489-493; portance of, 426; influences of textbooks in, 484-486; intelligence and performance in, 470; IQ score and achievement in, 449; learned responses and, 429-430; philosophy of immediate gratification and, 435-436; physical development and achievement in, 437-441; reading readiness tests, 451-453; socialization and, 357; socioeconomic status and achievement in, 431-437; teacher-pupil relationships, 476-484; teacher as substitute mother, 428-429; variations in school experience, 476-497
- Science, child psychology and method of, 15-23; nature of, 10-12; research steps in, 13-15
- Second year, aggression in, 217-221; anxiety in, 221-223; autonomy in, 207-210; exploratory behavior in, 207-210; intellectual development, 196-198; language development in, 187-195; mastery motivation in, 221; motives in, 211-225; motor development in, 184-187; peer affiliation in, 221; physical development in, 183-184; socialization in, 183, 198-207
- Secondary sex characteristics, 513
- Self-concept, in adolescence, 507-508, 516-519, 580-582; anxiety over deviant, 147; delinquency and, 581-

Self-concept (*Continued*)

- 582; in middle childhood, 359-360; in preschool years, 279-280; toilet training and, 204-205
- Self-confidence, school environment and, 489-493
- Self-consciousness, adolescent, 522
- Self-help, anger and, 220
- Sensorimotor intelligence, 117-119, 120, 195, 253-254, 525
- Sensory development, of fetus, 65-66; of newborn, 89-90; trends in first-year, 111
- Sentences, in preschool years, 239-241
- Sex, curiosity about, 282, 531; determination of, 36; as motive, 141; physical development in adolescence, 512-516
- Sex chromosomes, 36
- Sex differences, in achievement motivation, 293-294; in activity level, 88; in adolescent sex responses, 532-535; in aggression, 286-289; in anxiety, 463; in birth weight, 91; in delinquency, 584, 592-595; in dependency, 290-291; in friendship, 329; in identification with mother, 458; in independence, 556; in IQ changes, 456; in language development, 194-195, 238; in maturing, 509, 512; in moral standards, 579-580; in motor performance, 512; in muscle proportion, 94, 362; in pain threshold, 90; in physical characteristics, 233-234; in physical growth, 93, 361; in puberty age, 513-515; in thinking mode, 475; in vocational adjustment, 566-567
- Sex instruction, parental role in, 537-538; sexual responses and, 540-541
- Sex play, 358, 532
- Sex responses, in adolescence, 506, 531-546; emergence of sexual interests and motives, 281-282; cultural differences in, 538-541; in middle childhood, 358; parental attitudes towards, 537-538; sex instruction and, 540-541; social class and, 543-544; toilet training and, 203-204
- Sex-typing, adolescent personality and, 517-518; competition and, 331-332; described, 261-262; differences in, 373-374; identification and, 268-269; in middle childhood, 358-359; motives in, 263-264; parents and, 262, 270-271; peer relations and, 372-373, 384-385; personality traits and, 370-372; prohibition learning and, 264; research on, 271-273; social pressures and, 262-263, 270; vocational choice and, 374-375
- Siblings, influence of sex of, 406; ordinal position of, 405-406; personality and, 404-407; spacing of, 406-407
- Skeleton, in adolescence, 511, 512, 515-516; development of, 93; in middle childhood, 362; in preschool years, 234; in second year, 184
- Sleep, need for, 95-96
- Smell, sense of, in newborn, 103
- Smiling response, in first year, 161
- Social class, ability to set long-range goals and, 376-379; adolescent sex behavior and, 533, 534, 535-537; attitudes toward parents and, 403-404; competition and, 331-332; curriculum and, 436-437; delinquency and, 585, 591-595; differences in family and peer group, 574; immediate gratification and, 435-436; infant feeding and, 174-175; intelligence tests and, 454-455; language development and, 195, 238-239; moral standards and, 578-579; mother-child relationship and, 402-403; peer-group status and, 385-387; physical defect and, 439; school achievement and, 431-437; sex-appropriate behavior and, 373-374; sex responses and, 543-544; superego development and, 378; toilet training techniques and, 205; vocational choice and, 374-375, 562-566
- Social development, institutionalization and, 162-171; mother and, 159-161; in preschool years, 261-302
- Social pressure, same-sex identification and, 270; sex-typing and, 262-263
- Socialization, children's readings and, 484; dependency and, 290-293; home and, 324-326; increased participation, 326-328; maternal acceptance and, 393; mother and, in first year, 159-161; nursery school and social behavior, 334-338; peer group and, 387-388, 390-392; in preschool years, 324-330; school and, 357, 426; in second year, 183, 198-207; stability of, 582
- Spatial orientation, perception of, 250-251
- Speech, *see* Language; Language development
- Sperm, chromosome constitution of, 33-36; in fertilization, 29, 57-58; pro-

- Sperm (*Continued*)
 duction of, 34; in sex determination, 36
- Stammering, 241-248
- Standards, of bad and good behavior, 244-246; preschool years and moral, 276-279
- Standing, in first year, 108
- Static-kinaesthetic sensitivity of newborn, 104
- Status, of adolescent, 507-508; behaviors associated with, 385-387; in peer group, 383-390
- Stimulus generalization, learning theory, 136-137
- Stimuli, in anxiety production, 143-147; in learning, 127, 129-131; neonatal adaptation to, 90, 105-106; similarity among, 136-137
- Stress, neonatal responsivity to, 91; speech and, 247
- Stuttering, 241-248
- Subjection, fears and, 321
- Superego development, 276-279; duration of, 280; in middle childhood, 407-408; social class and, 378
- Syntactic rules of language, 111, 112, 237
- Taste, sense of, in newborn, 103
- Teacher-pupil relationships, 476-489
- Teachers, philosophy of, 435-436; as substitute mother, 428-429; values of, 429-430
- Temper tantrums, 286, 287, 288
- Textbooks, influence of, 484-486
- Toilet training, age of initiation, 205, 206; aggression and, 217; complexity of, 96; difficulties in, 198-199, 201-203; enuresis, 206-207; learning theory and, 199-200, 201; self-concept and, 204-205; sexual functioning and, 203-204; social class and techniques of, 205
- Touch, differential sensitivity to, 90; tactile contact of infant with mother, 154-157
- Training, for cooperation, 313-315; for dominance, 313-315; reactions to, frustration and, 312-315
- Trophoblast, 59
- Twins, genetic studies with, 42-43, 44, 45-46, 48-53; language development of, 241, 242
- Umbilical cord, 60-61
- Uterus, 59, 60-62, 513
- Values, in adolescence, 570-580; of teachers, 429-430
- Viability of fetus, 65-66
- Vision, development in first year, 97-105; perceptual development in preschool years, 248-252; personality and, 365
- Vocabulary, in preschool years, 237-241; in second year, 189, 190
- Vocation, and adolescence choice of, 559-567; adjustment to, in American culture, 561-562; adjustment to, in primitive cultures, 560-561; influences on choice of, 374-375; long-range goals in, 375-379; sex differences in adjustment to, 566-567; social class and choice of, 562-566
- Voyeurism, in preschool years, 282
- Walking, in first year, 107-110; in second year, 184-186
- Weaning, 173, 174
- Weight, in adolescence, 509, 510; in middle childhood, 361; of premature infants, 76-77; in preschool years, 233-234; in second year, 183-184
- Withdrawal, as defense, 304; from fears, 319-321; jealousy and, 322; in middle childhood, 360-361
- Zygote, division of, 58-59



Cite it!